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FUNCTIONAL REQUIREMENTS ANALYSIS
VOL.1

AMERICAN
MANAGEMENT
SYSTEMS, INC.

FUNCTIONAL REQUIREMENTS ANALYSIS

VOLUME 1 of 2

for the

Bureau of Land Management

ADP Modernization Project

April 1986

Contract AA852-CT5-15

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ID 88003210

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American Management Systems, Inc.

April 4, 1986

Mr. Jack Webber
Division of Information Resources Management
Bureau of Land Management
Department of the Interior
18th & C Streets, NW
Washington, DC 20240

Dear Jack:

Here is the final version of the **Functional Requirements Analysis** for the Bureau of Land Management's ADP Modernization Project. You will find that we have incorporated the comments and suggestions provided by BLM.

The format, structure, and content of this document are consistent with the outline and other materials that we reviewed with you in August. In particular, we have documented each BLM functional requirement using a standard format that is essentially identical to the one presented in our briefing. In addition, the overall organization of the document into chapters is the same as we had anticipated.

This deliverable was generated under Task 1 (Define and Analyze Functional Requirements) of our contract. We are continuing our work on the comments made to Task 2 (Analyze Existing Capabilities).

If you have any questions, please call me at (703) 841-6925.

Sincerely,

Winder G. Keating
Vice President

Enclosure

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1. INTRODUCTION

1.1 Overview and Purpose

This document identifies the Bureau of Land Management's functional requirements for automated data processing (ADP) support. This analysis is the first major deliverable produced under American Management Systems' contract to support BLM's ADP Modernization Project, a multi-year effort to improve the Bureau's ADP capabilities.

Within the Department of the Interior, the Bureau of Land Management has exclusive jurisdiction for 342 million acres of Federal lands; almost all of this land is located in 11 western states and Alaska. BLM is responsible for a host of programs affecting this land: resource management planning; energy and mineral leasing; grazing and range improvement; timber sales and forest management; fire fighting; soil, water, and air resources; cadastral survey; land sales and acquisitions; wildlife habitat, wilderness, and cultural resources; and other activities. For hundreds of millions of additional acres, BLM is responsible only for the subsurface resources lying under land managed by other Federal agencies and private owners. BLM's responsibilities require close coordination with other Federal agencies, especially where BLM is not the surface management agency.

BLM manages Federal land under a multiple-use philosophy -- formally defined in the Federal Land Policy and Management Act of 1976 -- intended to maximize the long-run benefits from the nation's resources. The Bureau has about 10,000 employees located in the Washington Office, the Denver Service Center, 12 State Offices, 55 District Offices, and 153 Resource Area Offices.

The Bureau's automated data processing requirements are currently supported by a network of aging computers located primarily in BLM's Denver Service Center (DSC) and State Offices. DSC operates a Honeywell DPS 8/70 mainframe, supported by a full complement of terminals, tape drives, disk drives, printers, communications processors, and other equipment. Each BLM State Office has a Honeywell Level 6 minicomputer used for local processing

and to access the DPS 8/70 in Denver. BLM also has other computers from a variety of vendors (e.g., Burroughs, Data General, Hewlett-Packard) used mostly by specific State Offices to run the Bureau's geographical information system and for supporting local systems (e.g., in Alaska). Finally, BLM uses computers owned by other organizations -- such as the U.S. Geological Survey, the Bureau of Reclamation, the Forest Service, and the Bonneville Power Administration -- to support specific applications and on a timesharing basis. In addition to these mainframe and minicomputer ADP resources, BLM offices at all levels use microcomputers for a variety of tasks.

In order to upgrade its ADP capabilities, BLM has initiated the ADP Modernization Project, managed by the Division of Information Resources Management (WO-870). The project is intended to accomplish the following objectives:

- Define BLM's current and future functional requirements for ADP and data communications support.

- Document the capabilities of BLM's current hardware and software and analyze any deficiencies in meeting current and future requirements.

- Identify the most efficient and cost-effective ADP hardware, software, and data communications configuration based on a cost/benefit analysis of alternative concepts.

- Prepare a configuration management plan with which to control the acquisition and management of any needed hardware, software, and communications capabilities.

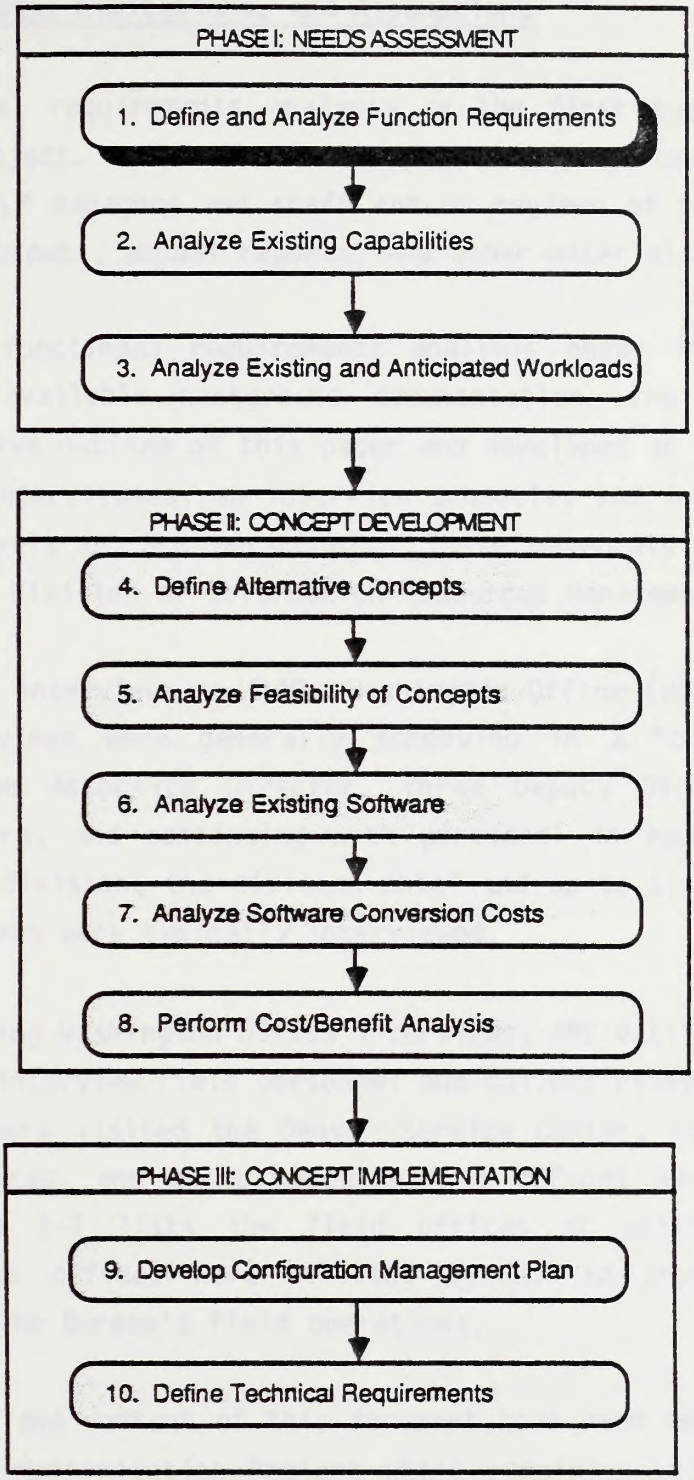
- Specify the technical requirements for any new ADP technology that BLM may elect to procure.

The ADP Modernization Study will provide a framework for all of BLM's data systems, including purely administrative applications (such as financial management), case/operations processing systems (such as the Automated Land and Mineral Records System), and land and resource inventory and analysis systems (such as the Bureau's Geographic Information System). The

Modernization Study will ensure that all of BLM's systems are supported by an integrated hardware, system software, and telecommunications environment.

Figure 1-1 depicts the tasks to be performed under AMS's contract. AMS's work will be completed by the end of fiscal 1987, with new ADP equipment being installed beginning in approximately 1989.

Figure 1-1. AMS has begun work on all three Needs Assessment Tasks.



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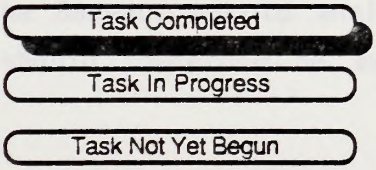


1.2 Methodology, Limitations, and Assumptions

Functional requirements analysis is the first task of the BLM ADP Modernization Project. The requirements in this document are based on interviews with BLM managers and staff and on reviews of procedures manuals, computer system outputs, annual reports, and other materials provided by BLM.

Work on the functional requirements analysis began in August of 1985. After reviewing available background documentation, the AMS project team prepared a tentative outline of this paper and developed an interview strategy covering target interviewees, an interview schedule, and interview guidelines for different levels of BLM personnel. These materials were reviewed and approved by BLM's Division of Information Resources Management.

AMS conducted interviews in BLM's Washington Office (WO) during September of 1985. Interviews were generally scheduled in a "top-down" sequence, starting with the Associate Director, three Deputy Directors, and seven Assistant Directors, and continuing with personnel in each WO division and office. In each division, the division chief and up to six branch chiefs and senior staff members were typically interviewed.

After completing Washington Office interviews, AMS visited a number of BLM field offices to interview field personnel and collect relevant documentation. Project team members visited the Denver Service Center, four State Offices, six District Offices, and eight Resource Area Offices during September and October. Figure 1-2 lists the field offices at which interviews were performed. These offices were selected by BLM to provide a reasonable cross-section of the Bureau's field operations.

The structure and content of this document have been designed to meet the needs of the ADP Modernization Project while remaining within the project's schedule and budget. In particular, the ADP Modernization Project is a strategic planning effort -- its purpose is to define the best overall ADP architecture for the Bureau, not to analyze specific application systems in detail. Readers should therefore be aware of several limitations of this document:

Figure 1-2. AMS visited a variety of BLM field offices in preparing this analysis.

BLM FIELD OFFICE	DATES OF VISIT
Denver Service Center	October 7-11
Eastern States Office	September 26-27
Montana State Office	October 7-8 and 11
Miles City District Office	October 9
Big Dry Resource Area	October 9
Powder River Resource Area	October 9
Lewistown District Office	October 10
Judith Resource Area	October 10
Colorado State Office	October 15-16
Grand Junction District Office	October 17-18
Grand Junction Resource Area	October 17-18
Oregon State Office	October 28-29
Medford District Office	October 30
Medford Resource Area	October 30
Lakeview District Office	October 31
Klamath Falls Resource Area	October 31
Prineville District Office	November 1
Central Oregon Resource Area	November 1
Deschutes Resource Area	November 1

- **This analysis covers major organizational functions with a significant impact on the Bureau's ADP environment -- it does not address every one of BLM's activities.** Operations with little effect on ADP workload (such as general liaison with environmental groups and state governments) are not discussed in detail, even though they may be important from a policy, programmatic, or legislative perspective.

- **The functional requirements in this document are described at an extremely aggregate level.** In order to support overall ADP and hardware planning and analysis, each functional requirement defines the general capabilities needed to support a major BLM function, such as coal leasing, rights of way, or cadastral survey. The requirements specified in this analysis are not intended to be used as the immediate basis for detailed system design and implementation.

- **Many of the functional requirements are met by existing Bureau ADP systems or are expected to be satisfied by systems now under development.** BLM's existing projects, especially ALMRS and GIS, are intended to address many of the unmet needs identified in this document. For planning purposes, however, it is important to describe all requirements to ensure that sufficient ADP capacity is acquired.

- **Functional requirements should be viewed as opportunities for improving the efficiency and effectiveness of BLM's operations, not as mandatory automated capabilities.** Some functional requirements may be most cost-effectively met through manual procedures or "second best" ADP systems instead of automated systems that meet every possible user need. BLM should make final decisions on which functional requirements are to be satisfied through computer-based information systems only after conducting a cost/benefit analysis.

- **Each functional requirement does not necessarily correspond to a single application system.** In some cases, a single BLM function might be best supported by several sets of ADP capabilities -- such as case tracking, spatial graphics, and management decision support. In other cases, a single system (e.g., the Case Recordation System or ORCA) may support many BLM functions.

- **Comprehensive, accurate functional workload statistics were not available for each requirement.** Because workload statistics are a key input into future ADP Modernization Project tasks, we are continuing our efforts to collect accurate statistics for requirements where information is not currently provided. In some cases, we found disagreement between workload statistics from different sources; the magnitude of the discrepancies are not significant for the purposes of this document, however.

- **We have not attempted to document in detail the exact procedures used by BLM offices to achieve programmatic objectives.** BLM's field offices differ in the ways that they perform various programs; in addition, specific responsibilities are delegated to different organizational levels in different State Offices. Although we have described the general operating procedures for most functions, an in-depth analysis of work processes is not critical to the success of the project.

- **This document is not intended to cover requirements for office automation.** BLM has contracts in place to meet its needs for word processing equipment and microcomputers, and has determined that office automation needs will not be addressed in the ADP Modernization Study. This paper does not attempt to define the amount or type of office automation gear that might be needed by each BLM office. Technical analyses to be performed later in the project will take account of the needs for interfaces between ADP and office automation equipment.

1.3 Organization of this Document

The outline of this deliverable was approved by BLM at the beginning of the functional requirements analysis. In addition to this introduction, this document is divided into six chapters and four appendicies:

- **Chapter 2, Overview.** Chapter 2 summarizes the most important results of the functional requirements analysis and their implications for subsequent tasks in the project.

- **Chapter 3, Functional Requirements for Energy and Mineral Resources.** Chapter 3 summarizes BLM's functional requirements to support its energy and mineral activities. In addition to listing the functional requirements themselves, Chapter 3 contains sections describing the organizational framework through which energy and minerals work is performed and important cross-cutting features of the energy and mineral requirements. For convenience, the functional requirements themselves are defined separately, in Appendix A.

- **Chapter 4, Functional Requirements for Lands and Renewable Resources.** Chapter 4 covers BLM's requirements in the area of lands and renewable resources. Like Chapter 3, this chapter contains sections discussing the lands and renewable resources organizational structure and key characteristics of the relevant functional requirements. Detailed requirements for lands and renewable resources are presented in Appendix B.

- **Chapter 5, Functional Requirements for Management Services.** Chapter 5 presents the functional requirements for management services -- both administration and technical services -- in the same format as Chapters 3 and 4. Management services requirements are contained in Appendix C.

- **Chapter 6, Field Office Functional Requirements.** Chapter 6 is a summarized discussion of the typical functional requirements for each of BLM's major types of field offices -- State Office, District Office, and Resource Area Office. The purpose of Chapter 6 is to provide a view of BLM's requirements organized by field office level rather than functional activity.

- **Chapter 7, Cross-cutting Functional Requirements.** Chapter 7 describes requirements associated with those BLM functions that cut across all organizational units (e.g., compiling Public Land Statistics). The focus of Chapter 7 is still on BLM functional activities, however, not on specific information systems. In particular, Chapter 7 does not discuss BLM's Automated Land and Mineral Record System (ALMRS) and Geographic Information System (GIS) efforts since these systems are intended to support functions described in Chapters 3, 4, and 5; from the perspective of this analysis, ALMRS and GIS represent potential solutions to BLM's requirements, not requirements in themselves. The specifications for cross-cutting functional requirements are in Appendix D.

- **Appendicies A, B, C, and D.** The appendicies contain detailed definitions for each functional requirement. Each functional requirement is defined in a stadard format.

Readers who want an overview of BLM's functional requirements should concentrate on the chapters in the body of this document. Readers who are interested in understanding BLM's requirements in a specific area should focus on the appropriate functional requirements appendix; to make it easy to locate a specific functional requirement, each appendix contains an index to the requirements for its respective area.

Chapter 2

2. OVERVIEW

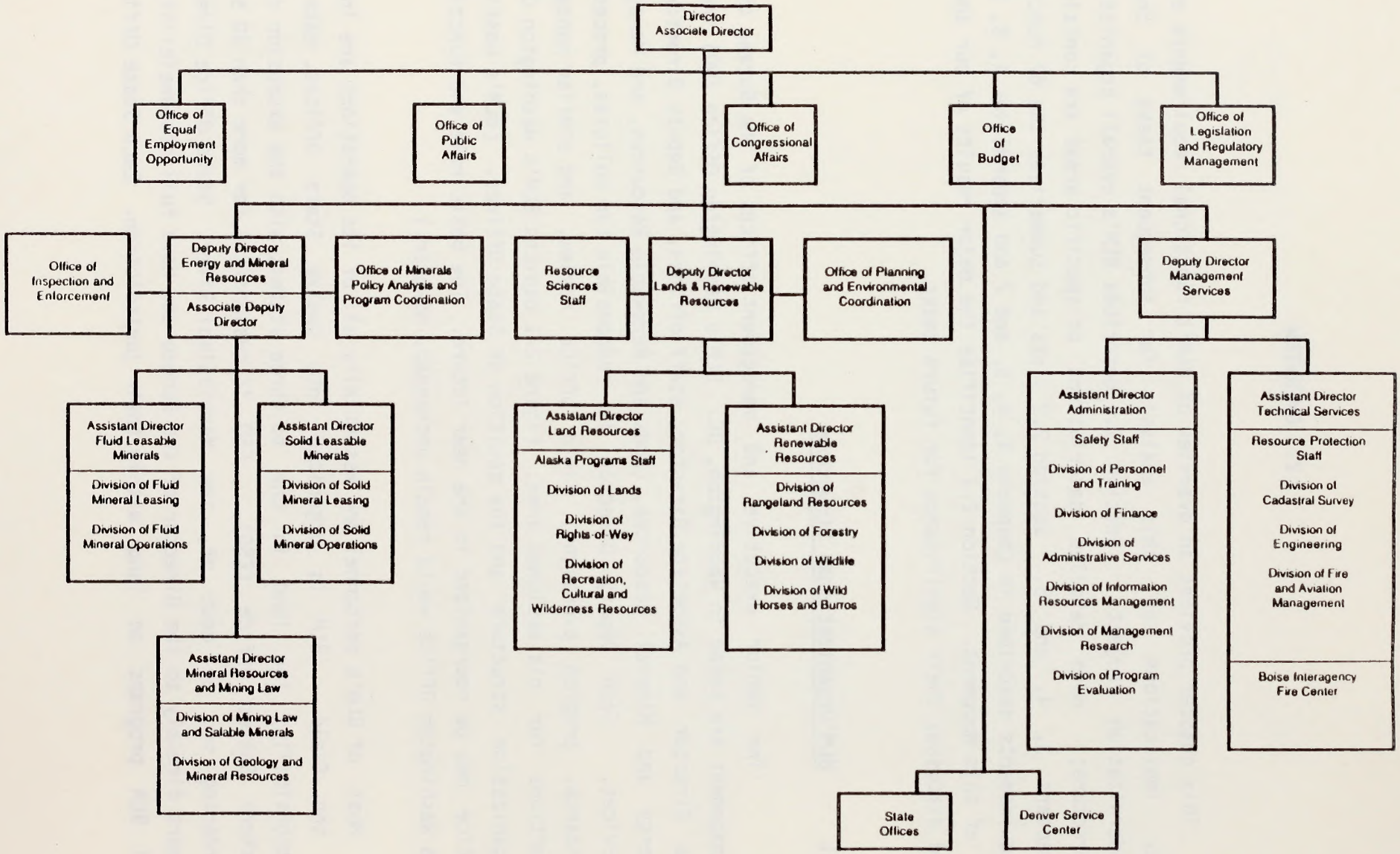
This chapter provides an overview of BLM's functional requirements and the key implications of this analysis for subsequent tasks of the ADP Modernization Project. Section 2.1 describes BLM's overall organizational structure; more detailed descriptions of specific areas are contained in Chapters 3, 4, and 5. Section 2.2 lists and summarizes the 67 functional requirements described in Chapters 3, 4, 5, and 7 and Appendicies A, B, C, and D of this document. Section 2.3 identifies the major results of our analysis and discusses their significance for future tasks.

2.1 BLM Organizational Structure

The senior executive and management offices of the Bureau of Land Management are based in Washington, DC. BLM's Washington Office (WO) includes the Director and Associate Director, staff offices, and Deputy Directors for Energy and Mineral Resources, Lands and Renewable Resources, and Management Services. Each Deputy Director is responsible for policies, procedures, guidance, program oversight, field office review, and similar management functions for his assigned area. Figure 2-1 depicts BLM's Washington Office organization structure and the position of State Offices. (BLM's Washington Office may be reorganized in the near future. The basic role and function of the Washington Office would remain unchanged, however.)

Most of BLM's personnel and essentially all of its operations are located in the field. BLM is organized into twelve State Offices, each with responsibility for land in one to three states, with the exception of the Eastern States Office (ESO). ESO is responsible for more than 30 states bordering on, or east of, the Mississippi River. State Office Directors report directly to the Director of the Bureau and have full responsibility for all BLM programs on land within their jurisdiction. Each State Office is

Figure 2-1. BLM's Washington Office organization.



supported by two to ten District Offices, which in turn oversee Resource Area Offices. Most direct operational functions are performed by the District and Resource Area Offices. Figure 2-2 shows the location of the Bureau's State and District Offices. Figure 2-3 depicts the standard organization for each State and District Office.

In addition to its State, District, and Resource Area Offices, BLM also maintains a service center in Denver, Colorado, and has administrative responsibility for the Boise Interagency Fire Center. The Denver Service Center (DSC) reports directly to the Bureau Director; DSC operates BLM's central computer center, performs administrative processing functions (such as payroll/personnel and accounting), and provides centralized expertise in engineering and other technical activities. The Boise Interagency Fire Center falls under the Deputy Director for Management Services.

BLM's field offices vary substantially in size and emphasis. Some Districts -- Medford, Oregon, for example -- are as large as many State Offices; similarly, some Resource Area Offices are almost as large as small Districts, although most have no more than a dozen personnel. Because of differences in the resources found on Federal land in various areas, different State Offices stress different programs. For example, the forestry program is extremely large and important in Oregon, whereas energy and minerals exploration and development are most critical in Wyoming and New Mexico. As a result of these variations, specific program functions may be performed at different organizational levels in different State Offices.

Figure 2-2. Most of BLM's personnel and operations are in its field offices.

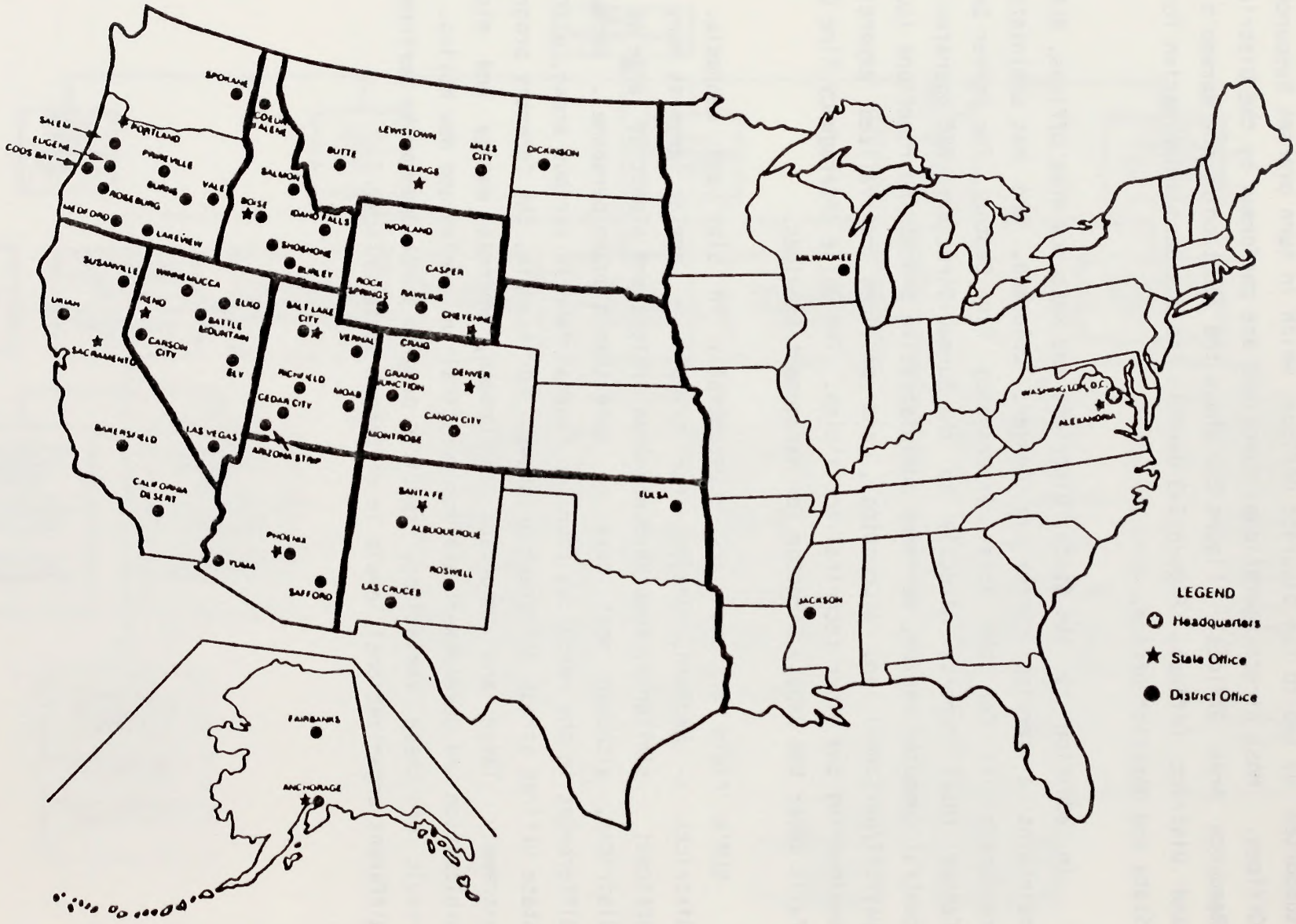


Figure 2-3. BLM's Field Office organization.

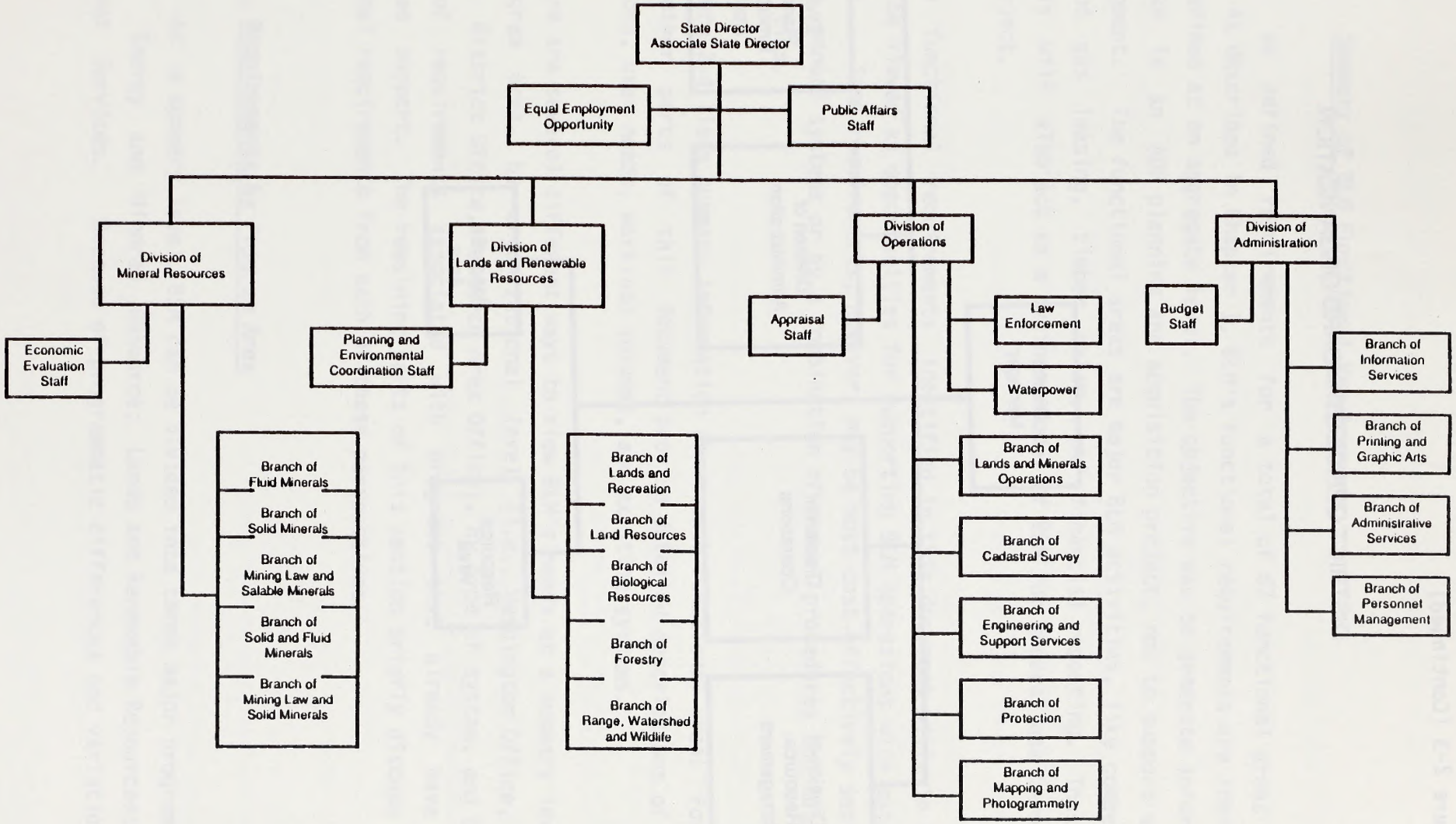
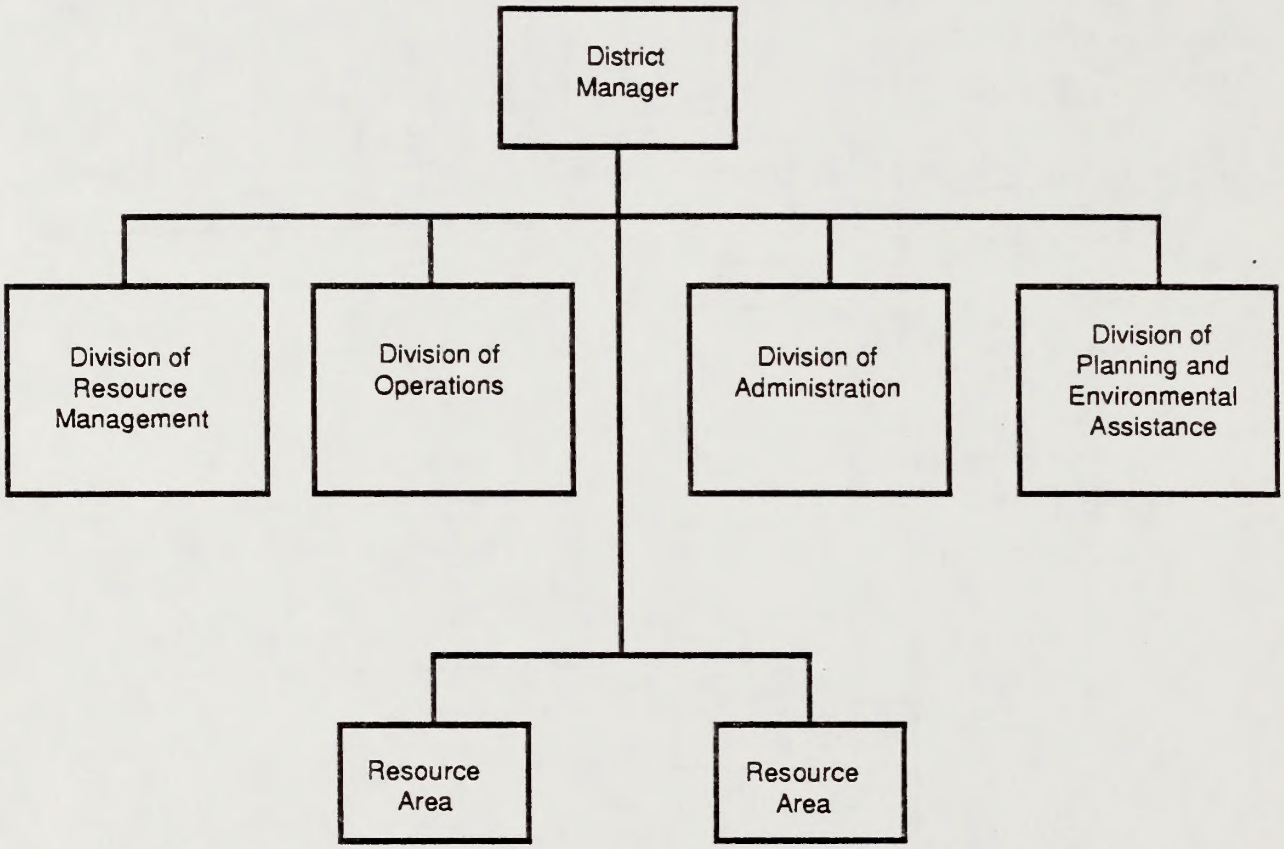


Figure 2-3 (Continued)

DISTRICT OFFICE STANDARD ORGANIZATION



2.2 Summary of BLM Functional Requirements

We defined requirements for a total of 67 functional areas within BLM. As described in Chapter 1, BLM's functional requirements are identified and defined at an aggregate level. The objective was to generate information for use in an ADP planning and acquisition project, not to support systems development. The functional areas are major BLM activities, like competitive oil and gas leasing, timber sales, and financial reporting. Thus, this analysis will also act as a business model of BLM for general use throughout the project.

The functional requirements identified in this document will, in future tasks, be viewed as opportunities for supporting BLM operations with automated systems. Some requirements, however, may be most cost-effectively satisfied through manual systems or by a combination of manual procedures and automated capabilities.

Figure 2-4 lists summary information about each functional area. For each area, other parts of this document provide detailed descriptions of BLM's operations, user needs, workload volumes, and existing systems.

There are several different ways to view BLM's needs at a summary level -- by program area, by organizational level (i.e., Washington Office, State Office, District Office, Resource Area Office), by type of system, and by the types of requirements associated with programs that already have some automated support. The remaining parts of this section briefly discuss BLM's functional requirements from each of these perspectives.

2.2.1 Requirements by Program Area

At a summary level, BLM can be divided into three major programmatic areas: Energy and Mineral Resource; Lands and Renewable Resources; and Managemnet Services. Because of programmatic differences and variations in

Figure 2-4. AMS identified 67 functions in the three BLM program areas.

FUNCTIONAL REQUIREMENT	RESPONSIBLE WO DIVISION	SIZE/SCOPE	Automated EXISTING SYSTEMS
ENERGY AND MINERALS			
Competitve Oil and Gas Leasing	WO-620	879 leases in FY84	None
Over-the-Counter Oil and Gas Leasing	WO-620	2,419 leases in FY84	None
Simultaneous Oil and Gas Leasing	WO-620	4,295 leases in FY84	SIMO
Maintain Oil and Gas Lease Files	WO-630	115,000 active leases	None
Drainage Detection Program	WO-630 WO-690	5,099 cases identified in FY85	PI/GEM-1
Identify and Delineate Known Geological Structures	WO-630 WO-690	900 KGSs awaiting evaluation	PI/GEM-1
Process Unit and Other Agreement Applications	WO-630	578 agreements approved in FY85	None
Oil and Gas Inspection and Enforcement	WO-504	25,000 inspections in FY85	MS-1
Regional Activity Planning for Coal Leasing	WO-650	6 Federal Coal Regions	None
Coal Leasing	WO-650	Average 16 leases/year from FY78 and FY84	None
Preference Right Leasing for Non-Energy Leasable Minerals	WO-650	Dozens of leases each year	None
Competitive Leasing for Non-Energy Solid Leasable Minerals, Tar Sands, and Oil Shale	WO-650	2 leases in FY84	None
Maintain Solid Minerals Lease and Mine Files	WO-660	1,000 active leases	SLMS
Solid Leasable Minerals Regulatory Requirements	WO-660	Few violations	SLMS
Solid Leasable Minerals Inspection and Enforcement	WO-660	Thousands of inspections each year	SLMS
Mining Claims	WO-680	1.4 million active claims; 142,000 claims filed in FY84; 363 claims patented in FY84	MCRS
Salable Minerals	WO-680	1,200 negotiated/ contract/free-use; 2,500 sales from non-exclusive use sites	VMADPRS Material Sales
Adjudicate Energy and Mineral Leases	WO-620 WO-650	63,000 cases in FY84	ORCA, Case Recordation Sy
Administer Waste Management Program	WO-501	unknown -- estimated thousands of sites	None
Coordinate with Minerals Management Service	WO-630 WO-660	N/A	MS-1, SLMS, MMS systems
Support BLM Resource Management Planning	All WO divisions	153 Resource Areas	None
Provide Policy, Procedures, and Overall Program Management for Energy and Mineral Resources Functions	All WO divisions	N/A	Various

Figure 2-4 (Continued)

FUNCTIONAL REQUIREMENT	RESPONSIBLE WO DIVISION	SIZE/SCOPE	EXISTING SYSTEMS
o Track R&D Projects	WO-201	1000 Projects	ASPEN/2 Data Base
o Planning Guidance	WO-201	165 Plans	GIS
o Resource Program Oversight	WO-ALL	9 Programs	Misc. programs on Wang PC
o Land Records Management	WO-321	7.5 million Records	
o Land Case Processing	WO-321 WO-322 WO-330 WO-341	48,500 Cases 435,590 Acres	Case Recordation and ORCA
o Resource Programs Planning	WO-221 and all Programs	165 RMP	GIS
o Grazing Authorization and Billing	WO-220	13,053 (Sec 3) Permits 7,550 (Sec 15) Leases	RMAS
o Range Land Monitoring	WO-220	Unknown	ASPEN/2 data bases
o Land Improvements	WO-220 WO-230 WO-240 WO-321	93,190 Jobs 34,329 Forest Improvements 649,955 Wildlife Habitats 12,401 Recreation Sites	JDR STORMS SageRam
o Land Resource Inventory	WO-220 WO-230 WO-240 WO-250 WO-341 WO-342		GIS ESI IDS WDMS STORMS MICRO-STORMS RAIDS T&E IHICS Wang PC data bases
o Timber Appraisal	WO-230	Appraisals on 1,129,979 board feet	Forest Inventory
o Timber/Material Sales	WO-230	Sales of $117,000,000	o Western Oregon Timber Information System o STORMS o Material Sales
o Wild Horses and Burros	WO-250	51,148 Horses Adopted Adopted	o ADOPT
o Wildlife Habitat Protection	WO-240	1,866 Improvements 255 Miles Improved 38,874 Acres Improved	o T & E o IHICS o RAIDS
o Recreation and Wilderness Management	WO-341 WO-342	12,401 Recreation Sites 918 Wilderness Areas	o ASPEN /2 Data Bases o Wang PC Data Bases
o Culture	WO-341		o Miscellaneous ASPEN/2 Data Bases
o Studies	WO-220 WO-230 WO-221 WO-240 WO-341 WO-342		o ASPEN/2 Data Base

Figure 2-4 (Continued)

FUNCTIONAL REQUIREMENT	SIZE/SCOPE	EXISTING SYSTEMS
MANAGEMENT SERVICES		
Financial Handling Accounts	130,000 Payments/Yr.	FMS
Financial Reporting	N/A	FMS
Incident Investigation and Reporting	4,000 Outstanding Cases 63 Law Enforcement Agreements	LIDS LEADS
Conduct Cadastral Surveys	119,005 acres surveyed 1,844,151 resurveyed	Cadastral Field Notes in DSC and Colorado
Maintain Cadastral Field Notes	1,423,144,011 acres	Cadastral Field Notes in DSC and Colorado
Track Use of Outside Agency Funds	89,513 acres surveyed 777,576 resurveyed	FMS
Cartographic Services	341 million acres to Map	MOSS IDEMS ORCA
Facility Construction and Maintenance	15,000 buildings 406 recreation areas 55,097 cub ft dikes/yr 1,351,900 linear ft. of pipe/yr.	JDR FMS HEC 4 & HEC 5 Dam Safety System
Transportation System Design and Maintenance	65,000 miles of road	RDS - Forest JDR FMS
Predict, Prevent, and Fight Wildfire	Over 1 million acres a year burn	AFFIRM BEHAVE IAMS Fire Reporting Sys
Coordinate BLM Aircraft Requirements	$40M/yr	OAS Reporting Sys
Report EEO Compliance	10,000 BLM staff	FMS PAY/PERS
EEO Conflict Resolution	146 complaints/yr.	FMS PAY/PERS
Safety Reporting and Inspection	5,000 vehicles	Safety Records System - DSC
Personnel and Payroll Management	2,000 actions/yr	PAY/PERS Vacancy List SF52 Tracking Table of Org.
Position Management	10,800 BLM Positions Audit 25%/yr	PAY/PERS SF52 Tracking Table of Org.
Employee Development	75-200 records/State 10,000 BLM Staff	Training Catalog Tracking System Track. Sys. - Orego
Contract Preparation and Control	30 Contracts/staff 90 Contract/Staff in Oregon	PITS - Oregon Bidders Lists PTS - DSC PO Track - Montana

Figure 2-4 (Continued)

FUNCTIONAL REQUIREMENT	SIZE/SCOPE	EXISTING SYSTEMS
Fleet, Property, and Facility Management	5,000 Vehicles 110,000 Personal Property $500M Real Property	APPS - DSC APPS - Colorado Motor Vehicle Sys Director's Digest
Information Systems Management	13 ADP Centers	None
Telecommunications Management	125 Telephone Companies	Freq Mgmt System
Records Management	185,203 cu ft of records 77,063 Magnetic tapes	Corres Cntl - Montana Library Ref Sys On-line Comp Lib Ctr Direct. & Memo System Controlled Mail Sys.
Organizational Analysis	N/A	FMS PAY/PERS WBO Matrix MBO System
Program Evaluation	3 Management, 4 Program and 8 Tech/Admin Evaluations/Yr.	None
Budget Development	$418,000,000 Budget/Year	FMS WBO Matrix MBO
Budget Operations	$418,000,000 Budget/Year	FMS WBO Matrix
Exterior Liaison Queries	N/A	None
Exterior Liaison Document/Material Preparation	N/A	None

the extent to which each area has developed automated systems in the past, the nature of BLM's functional requirements differs across the three areas:

- For the 22 functions identified in Energy and Mineral Resources, systems like ORCA, Case Recordation, MCRS, MS-1, and SLMS provide a reasonable basis for management reporting and operations support, although most need enhancements to better meet user needs. Only the salable minerals program seems to lack an effective baseline data system. Energy and minerals personnel are also using locally developed microcomputer-based systems, BLM's Geographic Information System, and commercial software from Petroleum Information (PI) Corporation to perform resource analyses -- economic evaluations, oil and gas field mapping, well log analysis, and drainage screening. These efforts, however, face potential difficulties, especially in integrating different capabilities and data bases to analyze the same land. For example, field offices have trouble transferring well location and log data from the PI IBM-based systems to the Data General and Hewlitt-Packard GIS software. **Thus, the overall need in energy and mineral resources is to enhance and improve existing management reporting and operations support systems and to implement automated tools for economic and geological analysis in the field.**

- For the 17 functions identified in Lands and Renewable Resources, most program areas have at least some ADP support, ranging from large mainframe applications to locally developed data bases. Lands and renewable resources functions still have many disparate needs not now being met by automated systems. The most urgent need for all land functions is for geographic data combined with land characteristics data. There is also a need for tracking systems to improve the management of BLM's land planning, monitoring, and improvement functions. The Resource Science staff and Wildlife staff would like textual data to accompany the statistical data they already have. There is a need for socio-economic and resource management modeling and data analysis for the planning and studies functions in all the land resource programs. The Land Title Records management function in the Eastern States Office needs an automated land records system.

Thus, the overall need in land and renewable resources is to automate land coordinate and characteristic data to support select functions; provide tracking systems to support RMP development and land planning, monitoring, and improvement; provide modeling tools to select functions; and automate the ESO Land Title Records.

- For the 28 functions identified in Management Services and the Office of the Director, systems like PAY/PERS, the Financial Management System, and the Automated Personal Property System provide a reasonable basis for management reporting, although these systems need to provide more reporting flexibility, better data credibility, and improved timeliness to support administration in the field. Simple administrative tracking systems are needed in many management services programs to track key dates, activities, or actions. Some tracking systems exist now (such as the Job Documentation and Reporting System and SF 52 Tracking Systems) but these systems need improvement to fit users' needs. Systems for the same purposes are now being developed independently in different field offices, resulting in duplicative and often incompatible systems. Some administrative functions -- such as procurement and real property accounting -- are currently performed without any substantial ADP support. Technical services personnel are making extensive use of external analytical systems, such as the Forest Service's Road Design System, BEHAVE fire modeling system, or HEC 4 and HEC 5 hydrology analysis systems for analyses such as fire response planning, dam and road design, and stores inventory analysis. Thus, the overall need in management services is to enhance and improve existing management reporting and support systems, including ad hoc reporting; improve data credibility, data entry, and data communication; coordinate system development activities in different field offices; and to prepare and implement a comprehensive strategy for providing tools for technical analysis in the field.

Chapters 3, 4, and 5 and Appendicies A, B, and C provide a more detailed discussion of BLM's functional requirements for each program.

2.2.2 Requirements by Organizational Level

BLM is organized into four levels: the Washington Office; 12 State Offices; approximately 55 District Offices; and about 151 Resource Area Offices. Each level of the organization has distinct responsibilities in implementing BLM's programs, although there is substantial variation from office to office in terms exactly where a specific activity is performed.

Washington Office. BLM's Washington Office (WO) is primarily responsible for policy, procedures, guidance, overall program management, and responding to questions from other agencies, Congress, and the public. WO is not involved in most of BLM's operational programs. Accordingly, functional requirements at the Washington Office level are for management reporting and summary statisitics, ad hoc inquiries, and effective communications with field offices.

State Offices. BLM's 12 State Offices typically provide administrative services (e.g., personnel, procurement) for their component District Offices. In addition, State Offices are responsible for monitoring overall accomplishments for lands under their jurisdiction and for performing selected operational functions (e.g., energy and minerals adjudication, mining claims administration, land records maintenance). Functional requirements at the State Office level are for administrative systems, for workload statistics describing operations at lower organizational levels, and for case processing and operations support capabilities. A State Office needs good communications with its Districts, but does not normally share large amounts of data with other States.

District Offices. District Offices perform some administrative functions (e.g., personnel actions for temporary employees, some engineering work). In addition, Districts are the primary level for economic and geological analysis and other operations in the energy and minerals program. In lands and renewable resources, Districts are responsible for certain case processing

tasks and for some resource analysis (e.g., timber appraisals). District Office functional requirements are therefore focussed on case processing, workload tracking, and land and resource inventory and analysis capabilities.

Resource Area Offices. Resource Areas are almost totally operational in their responsibilities, with administrative and technical services provided by District and State Offices. Resource Areas are perform and track land improvements and resource inventories, issue grazing permits and leases, and prepare Resource Management Plans. Resource Area functional requirements are for land and resource inventory and analysis capabilities and for case processing and workload tracking.

2.2.3 Requirements by Type of System

The functional requirements identified in our analysis can be divided into three types by the nature of the system that would be needed: administrative, case/operations processing, and land and resource inventory and analysis. BLM has different requirements in each of these areas.

- **Administrative Systems.** BLM's 28 functional requirements for administrative support are met by an existing core of automated systems -- the Financial Management System, PAY/PERS, the Automated Personal Property System, and so on. Although some functions (e.g., contracting and procurement) receive little automated support, BLM's primary need in the area of administrative systems is to improve and enhance the capabilities now in place.

- **Case/Operations Processing Systems.** Case and operations processing systems are those used on a day-to-day basis by BLM personnel to record information about the status, history, and substance of its work. At the extreme, case/operations processing systems are the foundation for performing certain functional activities. While ORCA and CRS are the primary starting points for case/operations processing systems within BLM, there are still significant unmet needs in this area. Case/operations processing capabilities need to

be expanded into new functions (especially in lands and renewable resources) and enhanced to provide more features to a larger number of BLM personnel. We identified 54 case and operations systems, some of which are also classified as land and resource inventory and analysis systems.

- **Land and Resource Inventory and Analysis Systems.** BLM's most extensive and sophisticated needs are in the area of land and resource inventory and analysis capabilities. Systems of this type would provide automated support to BLM users in activities such as KGS and drainage analysis, Resource Management Planning, environmental impact analysis, and lease boundary delineation. The hardware, software, data collection, and operating costs of automated systems to provide these capabilities in a responsive, on-line environment are extremely high. Conversely, systems providing these features offer the potential for reducing the amount of highly skilled labor needed to perform many BLM functions and improving dramatically the quality of BLM's outputs. We identified 16 land and resource inventory and analysis systems, some of which are classified under case/operations processing systems.

2.2.4 Additional Requirements in Programs with Existing Automated Systems

As shown by Figure 2-4, fifty-two of BLM's functions are currently supported by ADP systems. Even where existing systems are operational, however, the entire range of user needs is often not being met. In some cases, resource limitations prevented systems development efforts from addressing the full range of user needs. In other instances, requirements have shifted over time, creating a mismatch between user needs and system capabilities. Finally, the falling price of ADP hardware makes it possible to provide automated features that earlier may have been too expensive to implement.

For programs supported by existing systems, the most common additional requirements included:

- **On-line data entry, validation, and posting.** For many systems, input data is entered onto paper forms, mailed to DSC, and key-entered there. Data input error reports are then returned to the appropriate field office for correction and resubmission, with the overall process requiring as long as several weeks. In other systems, input transactions are entered via terminal, but are not edited on-line. For some systems, if data could be entered, validated, and applied to system data bases on-line, BLM users would receive system outputs much more quickly than is now the case. In addition, the total amount of effort needed to enter and perfect system input data might be reduced. For some systems, new technologies (e.g., pocket radio, hand-held bar code readers) may be able to allow data to be converted into computer-readable form at the point of origin in the field.

- **Expanded data bases to encompass more case types and additional information for each record.** Many of BLM's systems do not store information about the full range of operations in a program. For example, MS-1 (which supports oil and gas inspection and enforcement) covers only production inspections and only stores the results of the most recent inspections. Conversely, we found some instances where systems contained unused data elements.

- **Better data administration and quality control.** Some users expressed little faith in the quality of the data stored in their automated systems. Some BLM systems appear to be designed primarily to support Washington Office data needs. This these instances, field offices may lack strong incentives to ensure that automated files are kept accurate and up to date.

- **Increased focus on operations support rather than management reporting.** Some systems are designed to generate summary statistics for use by managers at the Washington, State, and District Offices, but include few capabilities to support day-to-day operations. While these systems may provide for better decision-making by managers, they do not result in improved quality, efficiency, and timeliness in the Bureau's work processes.

- **More timely information.** Some BLM systems do not provide managers and staff with output reports on a timely basis. Because the outputs of computerized systems are out of date, some programs maintain and rely on manual cuff records to track program status and accomplishments.

- **Improved management reporting and on-line inquiry capability.** Although some BLM programs are well-supplied with management reports from automated systems, many offices are forced to rely on telephone calls and special surveys to answer inquiries from other agencies, Congress, and the public. When time constraints are tight, the Washington Office is often forced to rely on partial or inconsistent information. In other cases, BLM personnel actually retain and use only a small proportion of the output of automated systems.

Obviously, these results do not apply to all of BLM's systems. Some systems appear to meet program needs quite well. In other cases, BLM staff recognize the limitations of existing systems and are working to improve them within the limits of available resources.

2.2.5 Requirements for ALMRS and GIS

Many of the functional requirements defined in the document are met by existing systems, including the Case Recordation System (sometimes referred to as ALMRS Phase 1) and current applications of the Geographic Information

System. In other instances, requirements are expected to be satisfied by the Automated Land and Mineral Records System and further enhancement and implementation of GIS capabilities.

Figure 2-5 depicts the extensive overlap between the requirements identified by our analysis and the capabilities to be provided by ALMRS and GIS. **Our analysis confirmed that ALMRS and GIS address important needs within the Bureau.** At the same time, there are several important uncertainties that must be considered. First, the functional capabilities to be provided by ALMRS are currently defined in general terms. For some requirements, additional systems analysis and design work is necessary before ALMRS's ability to meet a specific need can be confirmed. Second, BLM's GIS capabilities can be applied in a variety of ways. For some requirements, use of GIS is a potential solution that requires further analysis. Third, for both ALMRS and GIS, cost/benefit trade-offs may limit the implementation of all desired features in all geographic areas. Finally, some capabilities (e.g., spatical graphics and access to a common geocoordinate data base) are included in both GIS and ALMRS. For some requirements, it will eventually be necessary to decide whether BLM will use GIS, ALMRS, or both.

Figure 2-5. There is an extensive overlap between the requirements identified and capabilities provided by ALMRS and GIS.

FUNCTIONAL REQUIREMENT	POTENTIAL USE OF ALMRS AND GIS	
	ALMRS	GIS
Energy and Minerals		
Competitive Oil & Gas Leasing	o	o
Over-the-Counter Oil & Gas Leasing	o	o
Simultaneous Oil and Gas Leasing	o	o
Maintain Oil and Gas Lease Files	o	
Id & Invest. Drainage Situations	o	o
Id. & Delineate (KGSs)	o	o
Proc. Unit & Other Agreement Appl.		
Oil & Gas Insp. & Enforcement		
Reg. Act. Planning-Coal Leasing	o	o
Coal Leasing	o	o
Pref. Right Leas./Non-Energy. Min.	o	
Competitive Leasing-Non-Energy Minerals	o	
Maintain Solid Min. Lease & Mine Files	o	
Solid Leasable Minerals Reg. Req.		
Solid Leasable Minerals Insp. & Enf.		
Mining Claims		
Salable Minerals		
Adjudicate Energy and Mineral Leases	o	
Administer Waste Management Service	o	
Coordinate with Minerals Mgmt. Sv.		
Support BLM Resource Mgmt. Planning	o	o
Policy, Procedures, Mgmt. for E & M		
Lands and Renewable Resources		
Track R&D Projects		
Planning Guidance		
Land Management Oversight		
Land Records Maintenance	o	
Process Land Cases	o	o
Planning		o
Grazing Permit and Billing	o	
Rangeland Monitoring	o	o
Public Land Improvement	o	o
Inventory	o	o
Forest Appraisal	o	o
Timber Sales	o	
Wild Horses and Burros		
Wildlife Habitat Protection		o
Recreation Management	o	o
Cultural Resource Management	o	o
Research and Studies	o	o

FUNCTIONAL REQUIREMENT	POTENTIAL USE OF ALMRS AND GIS	
	ALMRS	GIS
Management Services		
Safety Inspection and Reporting		
Personnel and Payroll Management		
Position Management		
Training		
Contract Preparation and Control		
Fleet, Per. Prop., & Facility Mgmt.		
Information Systems Management		
Telecommun. & Technology Mgmt.		
Records Management		
Organ. Analysis & Reform 88 Rpt.		
Program Evaluation		
Fin. Handling of Accounts		
Financial Reporting		
Incident Investigation and Reporting		
Plan/Conduct Cadastral Surveys	o	
Maintain Cadastral Field Notes		
Track Cadastral Surveys-Outside Agencies		
Cartoraphic Services - GIS	o	o
Facility Construction & Maintenance		
Transportation System Maintenance		
Prevent, Predict & Fight Wildfire	o	
Coordinate Aviation Requirements		
Equal Employ. Opport. Compliance Rpt.		
Equal Employ. Opport. Conflict Resol.		
Budget Development		
Budget Operations		
External Liaison Queries		
External Liaison Doc./Material Prep.		
BLM-Wide		
Public Land Statistics		
Data Entry		
Technology Coordination		
ADP Training		
Management Ad Hoc Query		
Legal Land Coordinates		

2.3 Important Results of the Functional Requirements Analysis

The detailed information provided in the appendicies for each of the 67 functional requirements will be used in conjunction with other information on existing ADP capacity utilization as the basis for projecting BLM's needs for ADP hardware, software, and communications. A consideration of alternative ADP architectures should address not only the Bureau's aggregate requirements for each system resource, but also how those resources should be organized into a practical, coherent structure.

This section identifies the key results of our analysis and discusses their impact on future tasks. In attempting to assess the issues likely to be important later in the project, however, it should be stressed that we are not pre-judging the analysis; it is too early to make even preliminary decisions on ADP architecture, acquisition strategies, and similar topics.

- **BLM's field operations are performed at different organizational levels in different State Offices.** BLM State Office Directors have significant discretion in deciding the organizational level -- State, District, or Resource Area -- at which many program functions will be performed. In the energy and mineral program, for example, oil and gas inspection and enforcement are based at all three levels in different States. It is difficult, if not impossible, to create an accurate model of a "typical" field office. The appropriate amounts and types of ADP hardware will differ significantly, even among offices at the same level. Furthermore, it may be most cost-effective to meet the requirements of colocated offices with a common set of ADP hardware, rather than providing each unit with independent equipment.

  Implications for future tasks:

  -- Because different functions are performed at different levels across State Offices, it would be advantageous if any new hardware and system software allowed a specific application

system to run at all levels of offices (assuming that processing capabilities will be distributed to some extent). For example, all computers might be required to run the same operating system and to support the same data base management systems.

-- A modular approach that allows BLM to "mix and match" compatible equipment to assemble an appropriate configuration for each office may be an attractive option. It will prove very difficult to conduct a hardware procurement for a set of specific stand-alone equipment models guaranteed to meet precisely the needs of each BLM office.

-- As part of any overall hardware installation, BLM will need to perform a careful evaluation of each site before deciding what equipment should be installed. It is clearly not appropriate to purchase a fixed configuration for every office at the same level.

- **Some of the functional requirements identified can be satisfied through a completely automated system only at a high cost.** Some requirements -- particularly those associated with resource analysis and inventory using computerized mapping and high-quality spatial graphics -- are extremely costly in terms of hardware, software, operations, and data collection. The costs and benefits associated with the automation of those requirements must be carefully studied before BLM makes a final decision on whether to implement automated solutions. In many instances, the best solution may entail both manual and automated operations to meet users' requirements most cost-effectively.

Implications for future tasks:

-- It could be as long as several years before BLM makes final decisions on the desirability and scope of automated systems to meet some requirements. Accordingly, any hardware purchased

through the ADP Modernization Project should provide for a high degree of flexibility and upward compatibility to allow BLM to implement these systems eventually (if cost-justified).

-- Because of the scale and complexity of some of the systems under consideration, BLM may elect to pursue a phased development strategy. The phases might be based on implementing selected subsystems in a given order, applying the entire system to different geographic areas in stages, or other approaches. The recommended ADP architecture should allow BLM to develop large systems in an incremental fashion, should the Bureau choose to do so.

- **Some BLM field offices are located in extremely remote spots where ADP resources and support may not be readily available.** BLM's State Offices are typically located in medium or large cities (e.g., Sacremento, Santa Fe, Portland, Denver, Boise, and Billings). District and Resource Area Offices, on the other hand, are often located in small towns hundreds of miles from the nearest large metropolitan area. This problem is ameliorated somewhat by the fact that many BLM offices are co-located.

Implications for future tasks:

-- The ADP architecture must take into account the limitations inherent to many BLM office locations: scarcity of skilled ADP personnel; unreliable electricity, heating, air conditioning, and telephone service; and relative inaccessibility to vendor personnel for training and maintenance activities.

-- The distances between many BLM field offices raises the costs of telecommunications for data transfer. A careful analysis of the costs and benefits of distributing data processing capabilities to local BLM offices will be extremely important in identifying an appropriate architecture.

- **Many of the unmet functional requirements and ADP problems that we identified cannot be attributed solely to hardware capacity.** In our interviews, we found that some -- but not all -- users cited on-line response time or batch job turnaround time (the most common indicators of capacity constraints) as major problems. Users more frequently identified difficulties in areas such as ADP training, speed and reliability of telecommunications, configuration management, data entry (including use of U.S. mail for communications), terminal incompatibilities, communications with ADP staff, and ADP specialist recruiting and retention.

Implications for future tasks:

-- To generate major benefits for BLM, the Bureau's ADP Modernization Study must be accompanied by improvements in other areas. While new hardware may alleviate some problems, BLM managers in Washington, DSC, and field offices must take effective action to address other ADP-related problems if the Bureau is to achieve the long-term benefits needed to justify new equipment. For example, new guidelines and automated tools (such as fourth generation languages) could shorten the time required to develop computer systems to meet user needs. The importance of effective ADP and IRM management will increase if BLM implements a more decentralized ADP architecture (i.e., one calling for the delivery of additional capabilities to District and Resource Area Offices). On the other hand, centralized architectures also impose burdens on ADP and IRM management, requiring economical, timely, and reliable data exchange with field offices and effective communications between central systems personnel and field users.

-- BLM may be able to define and implement "spin-offs" of the ADP Modernization Study to improve short-term effectiveness and efficiency and lay the groundwork for a new architecture.

-- Many users have developed a large number of local systems using word processors, microcomputers, or timesharing services (including DSC). It will be difficult -- but necessary -- to estimate the capacity required to support these local applications should users elect to install them on any new equipment bought through the ADP Modernization Project. At the same time, the great variety of hardware and software now in use creates important demands for compatibility.

- **There is a vast backlog of unmet demands for systems capabilities.** Few, if any, BLM programs are fully supported by existing ADP systems. Existing systems typically need to be enhanced to meet users' requirements, and additional systems are needed to support functions now performed entirely by hand. The backlog of requirements appears to be greatest in the area of work tracking and land/resource inventory and analysis.

Implications for future tasks:

-- The total ADP capacity required to satisfy users' requirements is much larger than that currently implemented within BLM. If there are sufficient personnel and funds for system development and enhancement, use of ADP resources will grow much faster than BLM's functional workload (as measured by statistics such as the number of leases issued, acres of timber harvested, and employees paid.) For the most part, this growth will be driven by systems that allow BLM to perform its existing functions more quickly and efficiently and with higher quality.

-- To achieve the full benefits of new hardware, BLM may need to initiate a systematic effort to enhance its existing systems and develop new applications. Simple conversion of current software to new hardware will not satisfy all users' needs, since some requirements are imposed by factors other than hardware capacity constraints.

- **With some exceptions, overall program growth is expected to be low.** BLM's mission, functions, and workloads are relatively stable. Most Bureau programs have shown little growth in the last five years; some may even be entering a period of shrinking workload (e.g., some energy leasing activities). Most of the BLM managers that we interviewed anticipated steady-state operations (e.g., changes in workload of less than 5-10% annually) for at least the next several years, even though some areas -- such as wilderness management -- may grow significantly. While some policy changes are possible (e.g., legislation requiring competitive bidding on all oil and gas leases), their net impact would not be large. In the next five to ten years, the amount of land managed by BLM is expected to shrink significantly as the Bureau completes transfers of land in Alaska.

  Implications for future tasks:

  -- The growth in demand for ADP resources within BLM is generated by the need to perform existing functions more efficiently and effectively. In this sense, BLM may be able to exercise some control of ADP usage that would be difficult to achieve in an organization (such as the Environmental Protection Agency or the Internal Revenue Service) that is affected by new legislation on an annual basis.

  -- The Modernization Study project team should remain aware of possible external activities that may affect BLM. One example of such activity is the BLM/Forest Service Interchange.

- **Most of the detailed land/resource inventory and analysis data used by BLM organizations is collected and used locally -- there is a moderate need for sharing with other BLM offices up and down the hierarchy and relatively little need for data exchange among offices at the same level.** BLM offices at different levels do exchange workload statistics, case records, and (in some cases) land/resource inventory and analysis data. Different BLM offices at the same level

seldom share workload or case processing information, and exchange land/resource inventory and analysis data only in special situations and when dealing with cases in boundary areas.

-- From a functional perspective, decentralized ADP architectures are likely to be feasible. In most instances, data is collected, manipulated, and stored at a single level in the organization. The data shared between levels is most often case processing information and management statistics.

-- BLM's telecommunications needs are heaviest between offices within a field hierarchy (e.g., a State Office and its component District Offices). There is relatively little need for data transmission between offices at the same level -- any network should probably be configured appropriately.

- **BLM's unmet functional requirements revolve around performing existing functions more thoroughly, with higher quality, and at a lower cost.** In most programs, new ADP systems are not necessary to allow BLM to meet its mandatory legislative obligations and internal management objectives. Few BLM programs are experiencing major problems -- rapidly increasing backlogs, sharply rising unit costs, deteriorating work quality, and extreme criticism from outside constituencies. Over the next few years, however, BLM is likely to experience increased pressure to justify its decisions more rigorously.

Implications for future tasks:

-- BLM should be able to rely more heavily on objective cost/benefit analysis in making ADP investment decisions than might be possible in some other organizations. Most of BLM's operations cycles and deadlines are medium- or long-term (i.e., weeks or months rather than minutes or seconds), and thus system performance requirements are driven by economic factors rather than programmatic objectives.

3. FUNCTIONAL REQUIREMENTS FOR ENERGY AND MINERAL RESOURCES

3.1 Energy and Mineral Resources Organizational Structure

The Bureau of Land Management implements its energy and mineral resources programs through all levels of its organization. The Washington Office is generally responsible for setting policy, defining overall procedures, and reviewing general program status. Energy and mineral program functions -- inspection and enforcement, leasing, adjudication, and so on -- are actually performed at BLM's State, District, and Resource Area Offices.

Different energy and mineral program functions are performed in somewhat different ways and at different organizational levels in different States. BLM State Offices have substantial authority to determine whether specific program activities should be conducted at the State, District, or Resource Area Office level. Typically, State Offices with relatively few energy and mineral resources perform more functions at the State; responsibilities are often delegated to lower levels in areas where the energy and mineral program is highly active.

3.1.1 Washington Office Responsbilities

In the Washington Office, BLM's energy and minerals activities are the responsibility of the Deputy Director for Energy and Mineral Resources. Reporting to the Deputy Director are three assistant directors:

- **Fluid Leasable Minerals** ... oil, gas, and geothermal.

- **Solid Leasable Minerals** ... coal, tar sands, oil shale, and leasable non-energy minerals (such as phosphate, sulphur, potassium, sodium, asphalt, and gilsonite).

- **Mineral Resources and Mining Law** ... "locatable" minerals (such as copper, lead, zinc, magnesium, gold, silver, and uranium) and "salable" substances (such as sand, gravel, stone, and aggregate).

Also reporting to the Deputy Director for Energy and Mineral Resources are the Office of Inspection and Enforcement (with responsibilities for oil and gas only) and the Office of Minerals Policy Analysis and Program Coordination.

Thus, Washington Office functions are organized by substance and by the process through which the substance is obtained by the public (i.e., leasables, locatables, and salables). Figure 3-1 depicts the Washington Office energy and mineral resources organization.

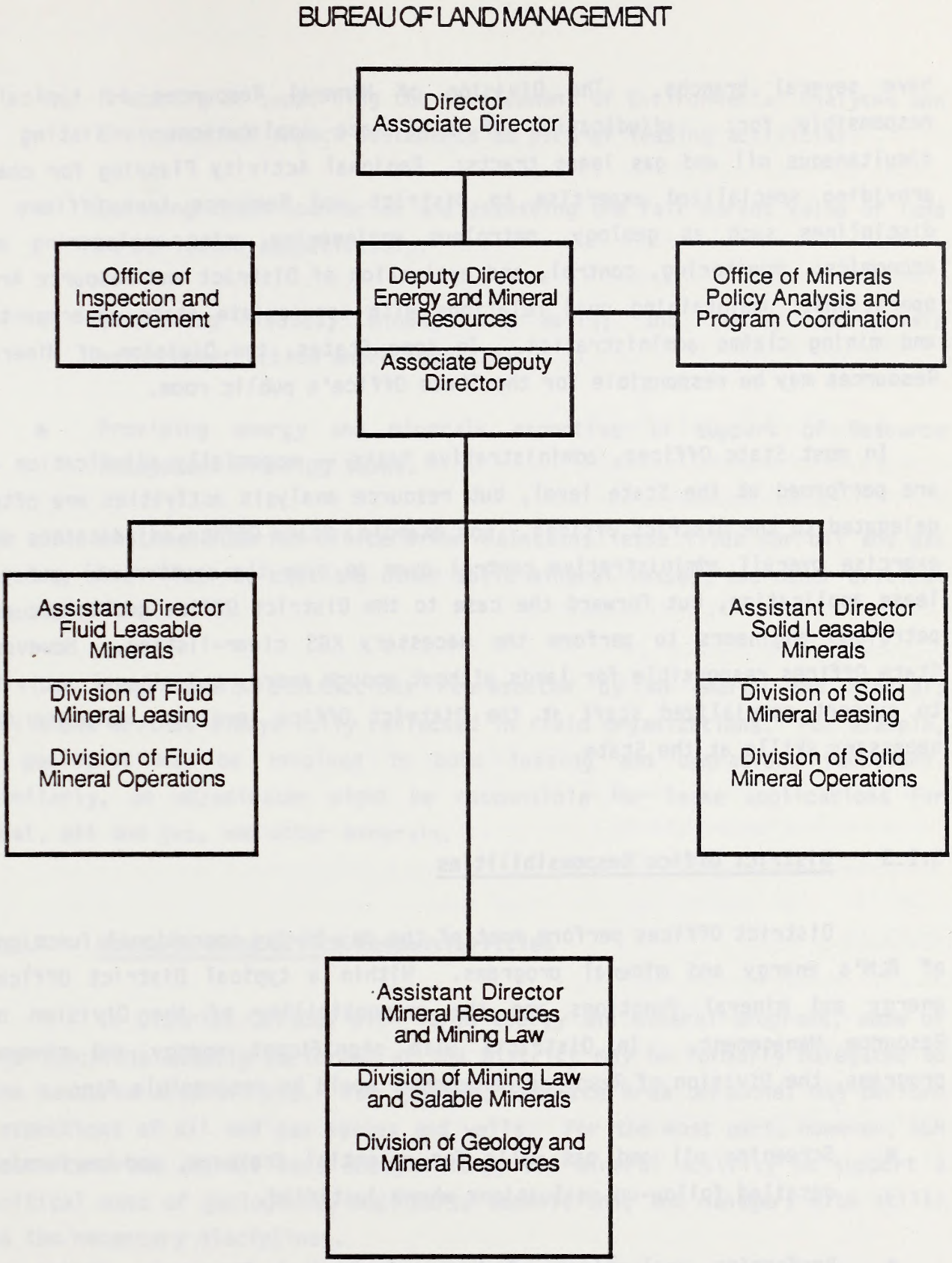
The Washington Office defines BLM's energy and minerals policies and procedures, monitors overall program status, performs reviews of field office operations, provides expert assistance to the field in some disciplines, and responds to questions from Congress, the Department of the Interior, environmental groups, and other external organizations. The Washington Office energy and minerals divisions issue a variety of directives, instructions, guidelines, procedures manuals, and other documents to formally notify BLM field offices of the results of WO activities. Washington Office divisions do not participate directly in leasing, adjudication, monitoring, inspection, and enforcement activities.

3.1.2 State Office Responsibilities

BLM's State Offices are responsible for energy and mineral programs on lands within their jurisdiction. Each State Office has substantial discretion over the extent to which specific responsibilities and authorities will be performed at the State Office or delegated to the District Offices or Resource Area Offices. Accordingly, energy and mineral operations are performed somewhat differently in each State.

Within a State Office, energy and mineral activities are performed by the Division of Mineral Resources. The size and internal structure of the Division of Mineral Resources varies from State to State. In States with little energy and mineral activity -- such as Oregon -- the division may have only a few employees and no branchs. In States with large energy and mineral programs -- like Wyoming and New Mexico -- the division may be quite large and

Figure 3-1. Washington Office Organizational Chart for Energy and Mineral Resources.



have several branchs. The Division of Mineral Resources is typically responsible for: adjudication of all lease applications; listing of simultaneous oil and gas lease tracts; Regional Activity Planning for coal; providing specialized expertise to District and Resource Area Offices in disciplines such as geology, petroleum engineering, mine engineering and economics; monitoring, control, and evaluation of District and Resource Area operations; maintaining good relations with appropriate state governments; and mining claims administration. In some States, the Division of Mineral Resources may be responsible for the State Office's public room.

In most State Offices, administrative tasks -- especially adjudication -- are performed at the State level, but resource analysis activities are often delegated to the District Offices. For example, State Office adjudicators may exercise overall administrative control over an over-the-counter oil and gas lease application, but forward the case to the District Office geologists and petroleum engineers to perform the necessary KGS clear-listing. However, State Offices responsible for lands without enough energy and mineral activity to support specialized staff at the District Office level may maintain the necessary skills at the State.

3.1.3 District Office Responsibilities

District Offices perform most of the day-to-day operational functions of BLM's energy and mineral programs. Within a typical District Office, energy and mineral functions are the responsibility of the Division of Resource Management. In Districts with significant energy and mineral programs, the Division of Resource Management would be responsible for:

- Screening oil and gas wells for potential drainage, and performing detailed follow-up evaluations where justified.

- Performing evaluations of Known Geological Structures (KGSs) in response to new producing oil and gas wells, as well as "clear-listing" tracts defined through the over-the-counter oil and gas lease applications or identified by BLM for leasing through the simultaneous oil and gas program.

- Preparing or supporting the development of Environmental Analyses and Environmental Impact Statements as part of leasing activities.

- Defining tract boundaries and assessing the fair market value of land to be leased competitively.

- Inspecting leases, mines, and wells, and taking appropriate enforcement action where necessary.

- Providing energy and minerals expertise in support of Resource Management Planning tasks.

In addition, the District Office often maintains lease files for oil and gas leases; mine files for coal and other solid mineral leases, and other critical records.

The programmatic distinctions represented by WO energy and minerals divisions are not always fully reflected in field organizations. For example, a geologist may be involved in both leasing and operations functions. Similarly, an adjudicator might be responsible for lease applications for coal, oil and gas, and other minerals.

3.1.4 Resource Area Office Responsibilities

In District Offices with large energy and mineral programs, some of the functions usually performed at the District may be formally delegated to the Resource Area Offices. For example, Resource Area personnel may perform inspections of oil and gas leases and wells. For the most part, however, BLM Resource Areas do not have enough energy and mineral activity to support a critical mass of geologists, engineers, technicians, and managers with skills in the necessary disciplines.

In addition, the District will draw on the expertise of Resource Area personnel in performing its own activities. For example, Resource Area specialists may perform a wildlife study to support an Environmental Impact Statement being prepared by the District Office as part of competitive oil and gas leasing.

3.2 Functional Requirements Summary and Critical Observations

We identified a total of 22 functional requirements to support BLM's energy and minerals programs. Figure 3-2 depicts the relationship of these requirements to BLM's organizational mission and programs. As shown in the figure, the functional requirements for energy and minerals can be divided into eight areas:

- Fluid mineral leasing
- Fluid mineral monitoring, inspection, and enforcement
- Coal leasing
- Non-energy Minerals, Oil Shale, and Tar Sands Leasing
- Solid mineral monitoring, inspection, and enforcement
- Mining claims (locatables)
- Salables
- Cross-cutting activities.

These categories are all self-explanatory, except for the cross-cutting activities group. The BLM functions in this last category are performed across all or most materials and processes -- adjudication, coordination with the Minerals Management Service, and Resource Management Planning support, for example. We identified the requirements separately for convenience and emphasis.

Figure 3-3 provides key summary information about each functional requirement: the Washington Office division responsible for policy, procedures, and program management; the level of BLM at which the operating activity is most typically performed (e.g., State Office, District Office); an indication of the size and scope of the function; and the name of the existing system (if any) used to support the function.

In preparing the functional requirements analysis for energy and mineral resources, we identified a number of key, cross-cutting factors that -- in addition to the detailed functional requirements defined in Appendix A -- will be important in future tasks:

Figure 3-2. Mission/Function/Program Chart for Energy and Mineral Resources.

Organization/Mission	Program	Function
Ensure proper development of fluid mineral resources on Federal lands. Division of Fluid Mineral Leasing (WO-62D) Division of Fluid Mineral Operations (WO-63D) Office of Inspection and Enforcement (WO-504) Division of Mineral Resources (SO) Division of Resource Management (DO)	Fluid Mineral Leasing	Competitive Oil and Gas Leasing
		Over-the-Counter Oil and Gas Leasing
		Simultaneous Oil and Gas (SOG) Leasing
	Fluid Minerals Monitoring, Inspection, and Enforcement	Maintain Oil and Gas Lease Files
		Identify and Investigate Drainage Situations
		Identify and Delineate Known Geological Structures (KGSs)
		Process Unit and Other Agreement Applications
		Oil and Gas Inspection and Enforcement
Ensure proper development of solid mineral resources on Federal lands. Division of Solid Mineral Leasing (WO-65D) Division of Solid Mineral Operations (WO-660) Division of Mineral Resources (SO) Division of Resource Management (DO)	Coal Leasing	Regional Activity Planning for Coal Leasing
		Coal Leasing
	Non-energy Minerals, Oil Shale,	Preference Right Leases for Non-Energy Minerals
		Competitive Leasing for Non-Energy Leasable Minerals, Tar Sands, and Oil Shale
	Solid Minerals Monitoring, Inspection, and Enforcement	Maintain Solid Minerals Leases and Mine Files
		Solid Leasable Minerals Regulatory Requirements
		Solid Leasable Minerals Inspection and Enforcement
	Mining Claims (Locatables)	Mining Claims
	Salables	Salable Minerals
Manage the overall fluid and solid minerals program. All WO Energy and Minerals Divisions and Offices Division of Mineral Resources (SO) Division of Resource Management (DO)	Cross-cutting Activities	Adjudicate Energy and Mineral Leases
		Administer Waste Management Program
		Coordinate with Minerals Management Service
		Support BLM Resource Management Planning
		Provide Policy, Procedures, and Overall Program Management for Energy and Mineral Resources

Figure 3-3. The operational level for most Energy and Mineral Resources functions is the State or District Office.

FUNCTIONAL REQUIREMENT	RESPONSIBLE WO DIVISION		OPERATIONAL LEVEL	EXISTING SIZE/SCOPE SYST
Competitve Oil and Gas Leasing	WO-620	State Office District Office	879 leases in FY84	None
Over-the-Counter Oil and Gas Leasing	WO-620	State Office District Office	2,419 leases in FY84	None
Simultaneous Oil and Gas Leasing	WO-620	State Office District Office	4,295 leases in FY84	SIMO
Maintain Oil and Gas Lease Files	WO-630	State Office District Office	115,000 active leases	None
Identify and Investigate Drainage Situations	WO-630 WO-690	State Office District Office	5,099 cases identified in FY85	PI/GEM-1
Identify and Delineate Known Geological Structures	WO-630 WO-690	State Office District Office	900 KGSs awaiting evaluation	PI/GEM-1
Process Unit and Other Agreement Applications	WO-630	State Office District Office	578 agreements approved in FY85	None
Oil and Gas Inspection and Enforcement	WO-504	State Office District Office Resource Area Office	25,000 inspections in FY85	MS-1
Regional Activity Planning for Coal Leasing	WO-650	State Office	6 Federal Coal Regions	None
Coal Leasing	WO-650	State Office District Office	Average 16 leases/year from FY78 and FY84	None
Preference Right Leasing Leases for Non-Energy Leasable Minerals, Tar Sands, and Oil Shale	WO-650	State Office District Office	Dozens of leases each year	None
Competitive Leasing for Non-Energy Solid Leasable Minerals, Tar Sands, and Oil Shale	WO-650	State Office District Office	2 leases in FY84	None
Maintain Solid Minerals Lease and Mine Files	WO-660	State Office District Office	1,000 active leases	SLMS
Solid Leasable Minerals Regulatory Requirements	WO-660	State Office District Office	Few violations	SLMS
Solid Leasable Minerals Inspection and Enforcement	WO-660	State Office District Office	Thousands of inspections each year	SLMS
Mining Claims	WO-680	State Office	1.4 million active claims; 142,000 claims filed in FY84; 363 claims patented in FY84	MCRS

Figure 3-3. The operational level for most Energy and Mineral Resources functions is the State or District Office.

FUNCTIONAL REQUIREMENT	RESPONSIBLE WO DIVISION		OPERATIONAL LEVEL	EXISTING SIZE/SCOPE SYSTEMS
Saleable Minerals	WO-680	State Office District Office	1,200 negotiated/ contract/free-use; 2,500 sales from non-exclusive use sites	VMADPRS
Adjudicate Energy and Mineral Leases	WO-620 WO-650	State Office	63,000 cases in FY84	ORCA, Case Recordation System
Administer Waste Management Program	WO-501	State Office District Office Resource Area Office	unknown -- estimated thousands of sites	None
Coordinate with Minerals Management Service	WO-630 WO-660	State Office District Office	N/A	MS-1, SLMS, MMS systems
Support BLM Resource Management Planning	All WO divisions	State Office District Office	153 Resource Areas	None
Provide Policy, Procedures, and Overall Program Management for Energy and Mineral Resources Functions	All WO divisions	State Office	N/A	Various

- **BLM's energy and mineral programs are governed by a complex set of laws and regulations, resulting in enormous variation in the details of the Bureau's work processes.** The specific lease periods, royalty rates and bases, operating requirements, acreage limitations, and other characteristics depend on a variety of factors:

  -- Type of material (e.g., oil, gas, coal)

  -- Technique by which the material is made available to the public

     - Leasable (both competitive and non-competitive)
     - Locatable (i.e., mining claims)
     - Salable

  -- Land classifications (e.g., Federal versus Indian, public domain versus acquired, special legislative designation, Resource Management Plan designation)

  -- Lease date (since existing leases, permits, or other on-going operations may be "grandfathered" or temporarily or permanently exempted from new requirements)

  -- Surface management agency (e.g., BLM, Forest Service, Department of Defense, Park Service, privately owned).

  Because of the nature of applicable laws and regulations, the exact procedures used in energy and minerals activities -- especially in leasing, adjudication, and regulatory enforcement -- vary from case to case.

- **The levels of activity in different energy and mineral functions show significant variation in the number of cases and transactions involved.** Between fiscal 1978 and 1984, for example, BLM issued an average of 16 coal leases annually; conversely, the Bureau awarded 814 competitive oil and gas leases, 2,419 over-the-counter oil and gas leases, and 4,295 simultaneous oil and gas leases in fiscal 1984

alone. At the same time, the complexity of energy and mineral leases, inspections, and other evaluations is highly variable, both among different activities and within a given function.

- **BLM's energy and mineral functions would benefit from decision support capabilities in scientific and engineering disciplines -- such as geological analysis -- as well as traditional business systems and case processing; most users said that their highest priority for ADP support was systems for resource analysis and operations support, not management information.** BLM's geologists and engineers perform a number of complex, labor-intensive analyses of energy and mineral resources (e.g., drainage determinations, KGS evaluations, coal mine plan reviews). These tasks could be completed more quickly and efficiently if BLM professionals had access to sophisticated software tools to help them analyze these cases. The costs of the necessary hardware, software, and data collection are likely to be high, however, making it important to base decisions on implementing such capabilities on careful cost/benefit and feasibility assessment. Overall, the administrative and case processing systems available to support the energy and mineral programs are more advanced than the scientific, engineering, and operations systems.

- **BLM managers responsible for energy and mineral functions expect the volume of activity to remain stable or even decline over the next several years for most programs and geographical areas.** The level of activity in energy and mineral functions is somewhat sensitive to the prices of natural resources, especially oil and gas. If energy prices remain stable or continue to fall, BLM anticipates little growth in its energy and mineral programs.

- **Energy and mineral programs are subject to major changes as a result of new policy and legislation.** Many energy and mineral functions are based on legislation that could be changed over the next several years. For example, Congress may pass a law requiring BLM to issue

all oil and gas leases on a competitive basis. Such policy changes could have an enormous impact on BLM's functional operations and workload in energy and minerals.

- **There are major disparities between BLM State Offices in the amount of energy and minerals work performed.** For example, there is relatively little energy and minerals work in the Oregon, Idaho, and Arizona State Offices. Overall, Wyoming, New Mexico, Montana, and Alaska have the largest energy and mineral programs. It is difficult to define a useful model of a "typical" set of State, District, and Resource Area field operations.

- **Many of the personnel -- and information systems -- in the energy and minerals program have become part of BLM only in the last few years.** These energy and minerals activities were originally performed by the U.S. Geological Survey and then by the Minerals Management Service before coming to BLM. As a result, some of the energy and minerals program's systems run on USGS computers. In addition, some systems have not been fully modified to reflect new organizational structures and other changes caused by the functional reorganization.

- **Most of the shortcomings of the systems now supporting BLM's energy and minerals programs are not caused by lack of hardware capacity, but by other factors -- lack of system functionality, hardware and software incompatibilities, training, telecommunications reliability, and so on.** BLM personnel did not cite problems with on-line response time or batch job turnaround as major obstacles. Hardware capacity could well become a constraint, however, as existing systems are enhanced and new systems developed.

3.3 Functional Requirements

Appendix A contains specifications for each of the 22 functional requirements identified for BLM's energy and mineral programs. Each function is described in a standard format, covering general information, a description of the function and the associated ADP requirements, performance and sizing factors, and the existing system(s) (if any) supporting the function.

Figure 3-4 lists the energy and mineral resources functional requirements and references the appropriate page number in Appendix A.

Figure 3-4
Appendex A Index

Functional Requirement	Page
Competitive Oil and Gas Leasing	A-3
Over-the-Counter Oil and Gas Leasing	A-9
Simultaneous Oil and Gas Leasing	A-14
Maintain Oil and Gas Lease Files	A-20
Drainage Detection Program	A-25
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Regional Activity Planning for Coal Leasing	A-48
Coal Leasing	A-53
Preference Right Leases for Non-Energy Minerals	A-59
Competitive Leasing for Non-Energy Leasable Minerals, Tar Sands, and Oil Shale	A-64
Maintain Solid Minerals Lease and Mine Files	A-68
Solid Leasable Minerals Regulatory Requirements	A-74
Solid Leasable Minerals Inspection and Enforcement	A-78
Mining Claims	A-82
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Adjudicate Energy and Mineral Leases	A-94
Administer Waste Management Program	A-99
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4. FUNCTIONAL REQUIREMENTS FOR LANDS AND RENEWABLE RESOURCES

4.1 Organizational Structure and Responsibilities

BLM's Lands and Renewable Resources programs are managed by a four tier organizational structure consisting of the Washington, State, District, and Resource Area offices. Figure 4-1 depicts the Washington Office land and renewable resources organization.

The organizational structure maintained at the Washington Office is based on programatic divisions (such as Forestry, Rangeland, and Rights-of-Way), which are less apparent at the State and District and Resource Area offices. This is significant, because the functions performed at the Resource Area level are not necessarily limited to one program -- a vegetation study can support a variety of functions, including rangeland, forestry, and wildlife habitats. One person at a Resource Area can also represent two or more programs. Most Lands and Renewable Resources functions pertain to more than one program, as Figure 4-2 shows.

The responsibilities of the different organizational levels differ by State Office. While some functions are assigned by law, such as the State Office signing off on a Resource Management Plan and writing Public Land Orders, others are delegated at the discretion of the State Director. For this reason it becomes difficult to specify precisely where a function is performed in the BLM organizational structure.

A more detailed look at the functions found at each of the four tiers will reveal some of the complexities in describing the responsibilities of the different tiers. What follows is an overview of the organization and responsibilities found at each tier.

4.1.1 Washington Organization and Responsibilities

In the Washington Office, BLM's lands and renewable resources activities are the responsibility of the Deputy Director for Lands and

Figure 4-1. The Washington Office Lands and Renewable Resources activities are organized by program.

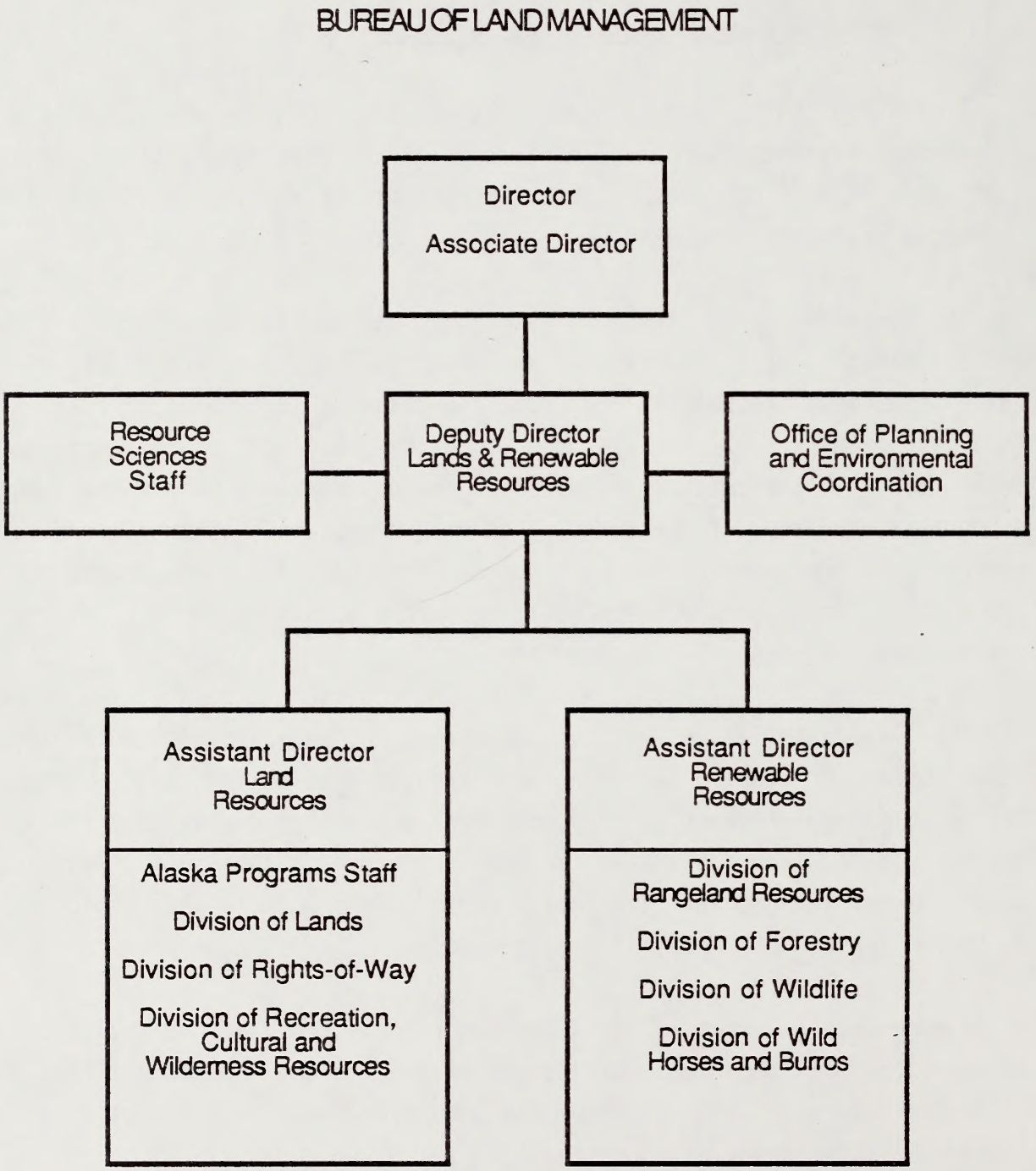


Figure 4-2. Mission, Programs and Functions Chart for BLM Lands and Renewable Resources.

ORGANIZATION/MISSION	PROGRAMS	FUNCTIONS
Coordinate R&D projects and facilitate the review process RESOURCE SCIENCES - STAFF	Studies Management	o Track R&D requests and projects and coordinate R&D approval with Line Manager Review Teams
Provide liaison between Washington and the State Offices, and guidance in RMP development, environmental issues and socio-economic issues PLANNING & ENVIRONMENTAL COORDINATION OFFICE (WO) DIVISION OF PLANNING & ENVIRONMENTAL ASSISTANCE (DO)	Planning Oversight and Policy Management	o Planning guidance - monitor and provide guidance and information for land use planning Resource Management Plan (RMP) development; provide NEPA guidance for environmental issues and coordinate with other Federal Agencies, and analyze socio-economic impacts of BLM actions.
Provide guidelines and policy for Lands Ownership to include: land acquisition, sale and exchange; permits for access to land, conservation and public access to BLM recreational, cultural and wilderness lands RANGELAND RESOURCES DIVISION FORESTRY DIVISION WILDLIFE DIVISION WILD HORSES AND BURROS DIVISION LANDS DIVISION RIGHTS-OF-WAY DIVISION RECREATION, CULTURE AND WILDERNESS RESOURCES DIVISION ALASKA LANDS STAFF	Resource Management Oversight (220-WO) (230-WO) (240-WO) (250-WO) (320-WO) (330-WO) (340-WO) (311-WO)	o Program oversight - develop guidelines and policy on land use, ownership, sale, exchange; write manuals and instruction memos; draft legislation; provide guidance for State Offices; track budget against accomplishments, perform studies; provide training policy.
DIVISION OF LANDS DIVISION OF RESOURCE MANAGEMENT	Resource Management	o Maintain Land Title Records, Field Notes and Land Plat Documents
RESOURCE AREAS	Resource Management Withdrawals Rights-of-Way Recreation, Culture and Wilderness	o Process applications for land use (to include Rights-of-Way, recreational use, archaeological surveys and withdrawls including preparation of Public Land Orders on Withdrawals cases. Process nominations for proposed sales and exchanges; docketing, adjudication, prepare Land Report, and case approval, issue permits, leases and patents. Convey land to Alaska Corporations.
Manage 300 million acres of BLM land and monitor the use and condition of the soil, vegetation, water, air, forests, wildlife habitat and horses and burros. RESOURCE AREAS	Planning Program	o Prepare land use plans to include: Resource Management Plans (RMP); Environmental Impact Statements (EIS); Allotment Management Plans (AMP); Environmental Analysis (EA); Categorical Exclusions; Experimental Stewardship Programs (ESP); Wildlife Habitat Plans (WHP).
	Rangeland	o Issue permits and lessee and collect fees for grazing lands.
	Rangeland	o Monitor management of lands including Experimental Stewardship and Cooperative Management Agreements (CMA);

Figure 4-2. Mission, Programs and Functions Chart for BLM Lands and Renewable Resources.

ORGANIZATION/MISSION	PROGRAMS	FUNCTIONS
RESOURCE AREAS (CONTINUED)	Resource Management Rangeland Management Forestry Wildlife Wilderness	o Improve, maintain and protect public lands (to include wilderness areas), by seeding, fencing, water development, fish and wildlife habitat, roads and forest improvements.
	Rangeland Management Wild Horses and Burros Wildlife Habitats Recreation, Culture and Wilderness	o Inventory existing resources.
	Forest Management	o Appraise values of timber resources, develop timber sales, stipulations, and bills for sales.
		o Plan and sell timber.
	Wild Horses and Burros	o Remove excess animals from the range; maintain corals of excess animals; process animals for adoption and manage contractors.
	Wildlife	o Protect wildlife habitats.
	Recreation, Culture and Wilderness	o Recreation and Wildernesss Management to include: preservation, management and protection of rivers, caves, cultural and archeological sites, and Wilderness areas.
	Culture	o Designate cultural sites.
	Rangeland Forestry Planning Wildlife Recreation, Culture and Wilderness	o Perform studies to include Wilderness Field Studies (WFS), reforestation, pesticides, air quality, socio-economic studies, biological studies (black leaf), selinium poisoning, water rights water supplies and programs.

Renewable Resources. Reporting to the Deputy Director are two assistant directors.

The Washington Office Lands and Renewable Resources divisions perform oversight functions, such as: developing guidelines and policy on land ownership, conservation, and use; planning oversight; studies management; training management; budget tracking; and responding to inquiries from the Department of the Interior, the press, Congress, public interest groups, and other organizations.

4.1.2 State Organization and Responsibilities

At each State Office, the Division of Lands and Renewable Resources is comprised of branches which represent several Washington Office Divisions, such as the Branch of Range, Watershed and Wildlife at the Oregon State Office. The basic BLM State Office organization chart (see Figure 4-1) indicates five possible Branches for the Division of Lands and Renewable Resources, of which a maximum of three can be chosen. Planning and Environmental Coordination is a staff position at the State Office. All State Offices visited during our field interviews (i.e., Colorado, Eastern States, Montana, and Oregon) conformed to this structure.

At the State level, the Lands and Renewable Resources Division and the Planning and Environmental Coordination Staff provide support and guidance to the District Offices. State Office support comprises:

- Coordinating between the Washington Office and the field

- Maintaining Land Case records; State Offices perform docketing on case records, adjudication, and coordinate and track records sent to the field for action. In some States case recordation is performed by the Operational divisions.

- In the Eastern States Office, maintaining Land Title records and controlling access to this information by the public is a Division of Lands and Renewable Resources function. Eastern

States maintains the original title records for land under its jurisdiction. In some States records are the responsibility of the Division of Operations or Division of Administration. Western states maintain records on the Master Title Plats and responsibility varies by State. Western states have archived their original records.

- Providing general technical expertise such as: statistical analysis of forestry appraisal data; studies like the "Guide to Colorado's GIS"; survey and design for Rights-of-Way; and modeling for environmental issues in Montana.

- Developing State policy on land functions, such as organization of District and Resource Area Offices and delegation of authority for lands functions.

- State Office strategic planning, such as Oregon's development of the ORCA system and leasing the Bonneville Power computer for lands processing when space was unobtainable on the DSC computer.

- Monitoring State performance in land functions.

- Providing policy decisions on State land and renewable resource issues.

- Planning and scheduling training as required.

- Tracking State-wide issues, such as water rights in Montana State Office.

- Loading information into statewide systems such as the GIS information load for the Western Slope in Colorado.

4.1.3 District Office Functions

At the District Office, the Division of Renewable Resources and the Division of Planning and Environmental Assistance perform Lands and Renewable Resources functions. According to the standard BLM organization chart for District Offices, the lands and minerals programs are to be grouped under the Division of Resource Management. Some of the Districts that we visited, however, did not conform to the standard organization chart for District Offices. For instance, in Colorado (where the minerals program is a large one) there is a Division of Mineral Resources and a Division of Lands and Renewable Resources -- just like a State Office structure. The discrepancy indicates that there is an autonomy in organizational structure to give Districts the freedom to develop an efficient operational structure.

Districts where the land and mineral programs are combined in one division have specialists representing the required disciplines for that District. For example the Prineville District Office's Division of Resource Management comprises a Resource Specialist, Soil Scientist, Realty Specialist, Geologist, Archelolgist and Outdoor Recreational Planner.

District Offices are responsible for supporting the Resource Areas under their jurisdiction, serving as liaison with the State Office, performing certain operational functions, and coordinating with local government and private groups on matters pertaining to the management of BLM land and resources. The extent to which operational functions are performed depends upon redelegation of authority based on the programs and needs of the Resource Areas.

Typical District Office functions which support the Resource Areas are:

- Maintain case records, as in the Grand Junction Dictrict Office, Colorado.
- Conduct improvement programs, such as the tree plantation for seedlings run by the Medford District Office in Oregon.

- Perform inventories on BLM resources, such as a soils inventory.

- Provide specialized expertise, such as landscaping or logging engineering.

- Monitor resources within the District such as the water rights analysis project in Montana.

- Maintain statistics of District resources, such as those on the impact of timber sales in Medford, Oregon.

- Maintain collections such as the herbarium at Prineville, Oregon.

- Perform special studies such as the soil and water study in Lewistown, Montana.

Functions performed in support of the State Office consist primarily of reporting on actions within the District for the Annual Work Plan or other program accomplishment statistics.

District Offices also are responsible for maintaining contact with other government land agencies in their area, and private citizens interested in land issues. All uses of BLM land can be scrutinized by citizen organizations, some of which keep their own records of BLM land actions.

4.1.4 Resource Area Functions

No standard organizational structure exists for BLM's Resource Area offices. In the smaller Resource areas, like Klamath Falls, Oregon, the staff of seven combine disciplines of all resources. Some of the larger Resource Areas, such as the Grand Junction Resource Area, are organized into: Realty and Minerals Staff, Range Staff, RMP Project Staff, and Multi-Resource Staff (with a Forester, Wildlife Manager, and Outdoor Recreation Planner). The combinations of minerals and realty and the multi-resources staff is indicative of the way programs are merged by the Resource Area offices.

The Resource Areas perform all of the hands-on work of maintaining, improving, and monitoring the land. Data collection and Resource Management Plans are the responsibility of the Resource Areas. It is at this level that the ultimate decision may be made on land uses, exchanges, and sales, however, this varies by State and depends upon the degree of decentralization and redelegation of authority. Resource Areas provide all support work done on land cases, and make the final decision on the outcome of the requested land use. Many requests for land uses are filed at the Resource Areas; a sheep owner can drive by the Resource Area office, obtain a permit to put his sheep on BLM land, and take them there after paying the fee. Resource Areas maintain recreational facilities and wilderness areas. The Resource Area also performs studies such as the sedimentation studies in Powder River, Montana. Realty appraisals are a function of the Resource Area Offices, as is problem solving in situations such as trespass and road use.

Resource Areas report program accomplishment statistics directly to the District Offices, which in turn consolidate the information and pass it to their State Office. Information is aggregated as it goes up each level, ultimately to be used for Washington Office reporting and to form the Public Land Statistics.

4.2 Summary of Functional Requirements and Key Observations

Lands and Renewable Resources functions are depicted in Figure 4-2, which shows the relationship of the requirements to the organizational programs and mission. Seventeen functions were identified; of these, three are primarily performed at the Washington Office level, two at the District Offices, and the remaining twelve at the Resource Area offices.

Figure 4-3 is a summary of the functions, giving the responsible Washington Office, the level where most of the activity is performed, work load or sizing information (where available), and the name of any existing automated system which supports the function.

- **Different BLM Land and Revewable Resources programs perform many of the same functions.** Common tasks include: planning, resource inventorying, monitoring, improving, and studying. For example, similar work is done on resources such as soil, vegetation, and water as they pertain to rangeland, forestry, wildlife, etc. Being able to share work already accomplished is critical to the success of BLM's mission.

- **Program offices collect statistical information by different categories. Information on work accomplishments is measured by different categories even for the same task.** For example, workload is counted by **case** for Recreation and Public Purpose, Desert land entry, and permits, but by **acres** for exchanges, sales, and color-of-title. It is difficult to determine how many cases there are in all. **Workload is measured by function in some programs, by workhours in another, and by workmonths in another.** Some programs had information by State and District and others did not. The problem lies in not being able to compare information if it is not gathered in the same format.

- **The Washington Office Lands and Renewable Resources divisions often have trouble getting information in the format desired for use in decision making and in response to requests.** The

Figure 4-3. Most Lands and Renewable Resources functions pertain to more than one program area.

FUNCTIONAL REQUIREMENT	RESPONSIBLE WO DIVISION	OPERATIONAL LEVEL	SIZE/SCOPE	EXISTING SYSTEMS
o Track R&D Projects	WO-201	WO-Field Offices	1000 Projects	ASPEN/2 Data Base
o Planning Guidance	WO-201	WO-201	165 Plans	GIS
o Resource Program Oversight	WO-ALL	WO	9 Programs	Misc. programs on Wang PC
o Land Records Management	WO-321	State or District	7.5 million Records	
o Land Case Processing	WO-321 WO-322 WO-330 WO-341	State or District	48,500 Cases 435,590 Acres	Case Recordation and ORCA
o Resource Programs Planning	WO-221 and all Programs	Resource Area	165 RMP	GIS
o Grazing Authorization and Billing	WO-220	Resource Area	13,053 (Sec 3) Permits 7,550 (Sec 15) Leases	RMAS
o Range Land Monitoring	WO-220	Resource Area	Unknown	ASPEN/2 data bases
o Land Improvements	WO-220 WO-230 WO-240 WO-321	Resource Area	93,190 Jobs 34,329 Forest Improvements 649,955 Wildlife Habitats 12,401 Recreation Sites	JDR STORMS SageRam
o Land Resource Inventory	WO-220 WO-230 WO-240 WO-250 WO-341 WO-342	Resource Area		GIS ESI IDS WDMS STORMS MICRO-STORMS RAIDS T&E IHICS Wang PC data bases
o Timber Appraisal	WO-230	Resource Area	Appraisals on 1,129,979 board feet	Forest Inventory
o Timber/Material Sales	WO-230	District Resource Area	Sales of $117,000,000	o Western Oregon Timber Information System o STORMS o Material Sales
o Wild Horses and Burros	WO-250	Resource Area	51,148 Horses Adopted Adopted.	o ADOPT

o Wildlife Habitat Protection	WO-240	Resource Area	1,866 Improvements 255 Miles Improved 38,874 Acres Improved	o T & E o IHICS o RAIDS
o Recreation and Wilderness Management	WO-341 WO-342	District and Resource Area	12,401 Recreation Sites 918 Wilderness Areas	o ASPEN /2 Data Bases o Wang PC Data Bases
o Culture	WO-341	District and Resource Area		o Miscellaneous ASPEN/2 Data Bases
o Studies	WO-220 WO-230 WO-221 WO-240 WO-341 WO-342	All Levels		o ASPEN/2 Data Base

Washington office is burdened with compiling important programmatic information manually, particularly for requests from external sources. Program offices collected workload information which we requested in different ways. Response was made with alacrity, but it took several days for statistics to be manually gleaned from the available information.

- **Information and automation needs for lands and renewable resources programs vary by State Office.** State Office organizations vary by State. The standard chart offers a selection of three out of five possible sturctures. This is directly corelated to the programs directed by the State. For example, in Oregon (where the focus is on the forestry programs) software for timber modeling would be necessary, while Montana is more involved with socio-economic modeling. Each State requires and generates a different amount of information in fulfilling its program missions. The difference is in quantity of information generated; all States need data about all land programs.

- **The Level of ADP expertise varies dramatically among BLM users.** Users in the land program have varying levels of experience in ADP, ranging from several years of FORTRAN programming to hesitance in using a terminal. Some users have their own Personal Computers and are knowledgeable in software packages which run on a PC. The difference in expertise might be used to advantage if experienced users could help the ones with less experience.

- **Users repeatedly mentioned the need for training and user support for existing systems and equipment.** The Lands and Renewable Resources Washington Office was not making full use of their Wang PCs for lack of training. WO personnel received some training, but found they needed more when they started to use the equipment. Two out of the four Deputy State Directors for Lands and Renewable Resources that we interviewed mentioned ADP

training as one of three critical needs. Range Conservationists in Oregon were not using RMAS for lack of knowledge about it. Users need a hotline they can call for help, an experienced user representative providing ad hoc assistance, and more continuous training.

- **Lands staff repeatedly mentioned problems with transmitting data using BLM communications lines and data transmission.** Many of the systems, such as RMAS and SageRam, reside at DSC. Access is generally through the State Office Level 6, which requires a District Office user go through two multiplexers. Lines are difficult to get, and one Resource Area prepared RMAS bills by hand rather than try to access the system. Users also complained about getting reports over the lines. Problems included losing a line during report transmission, requiring the entire two inch report to be printed over again. Data entry over transmission lines gets garbled and users resort to sending input forms by mail instead, even though this approach requires duplicate handling.

- **The scale and nature of ADP support must reflect the differences in Lands and Renewable Resources organizations and programs.** In order to determine the exact amount of ADP support at the District and Resource Area Offices, it will be necessary to inventory each office seperately. There is little similarity between States in workload and program emphasis.

- **Users are frustrated with support from the DSC.** There was an apathy among users concerning the support received or expected from DSC. It seems that low staffing levels make it hard to keep back-up expertise for each system, to answer questions when the expert is not available. Also, requests for data storage space on the DPS-8 were denied and users seemed not to understand why. One manager said that a request to change RMAS was made and approved by the Bureau Director six years ago, but was lost in the paper work at DSC with no explanation. Based on the

number of complaints, whether universally experienced or not, it seems that user's frustrations are having an impact on the use and management of ADP resources.

- **Duplicative data preparation is required for some systems.** Data to be entered on RMAS is handled twice; it is frequently entered on forms at the Resource Area and then keyed at DSC. Financial data for Case Recordation is entered on the Burroughs and also sent manually to MMS. Automatic data update and on-line data entry might reduce editing problems and also eliminate duplication of effort.

- **The variety of computer terminals and processors is confusing to the users.** In one office there can be as many as four different terminals, each dedicated to a different application and requiring knowledge of a different keyboard, commands and sign on routine. The variety makes user assistance more difficult. Support staff must be familiar with several types of terminals and explain the differences to the user. The variety generates confusion and extra work for user and support staff.

4.3 Functional Requirements

The requirements for Lands and Renewable Resources are presented in Appendix B. Seventeen requirements were identified. These functional requirements are intended to provide an overview of the processing done by the land programs; they are not intended to be a comprehensive account of all processing. For example, the omission in the Planning Function of some plans developed by the lands program staff is intentional, as the functional requirements pertain to all plans. Similarly, case processing includes all cases, including the Rights-of-Way and Withdrawals.

The Washington Office level: tracks research and development projects, and performs, planning, and program oversight functions. States process land cases, maintain the land title records and perform tracking and oversight functions for some programs such as rangeland monitoring. Districts can maintain land records, and work with Resource Areas on programs such as land improvements, inventories, forest sales and appraisals, habitat protection, recreation and cultural resources.

Figure 4-1 Index of Lands and Renewable Resources Functions

Function	Page
Track R&D Projects	B-3
Planning Guidance	B-7
Land Management Oversight	B-12
Lands Records Maintenance	B-16
Process Land Cases	B-21
Planning	B-28
Grazing Authorization and Billing	B-37
Rangeland Monitoring	B-43
Public Land Management and Improvement	B-49
Resource Inventory	B-57
Timber Sale Appraisal	B-62
Timber Sales	B-67
Wild Horses and Burros	B-75
Wildlife Habitat Management	B-81
Recreation and Wilderness Management	B-89
Cultural Resource Management	B-96
Research and Studies	B-100

Chapter 5

5. FUNCTIONAL REQUIREMENTS FOR MANAGEMENT SERVICES

5.1 Organizational Structure and Responsibilities

Management Services within BLM provides crosscutting functions that are the same regardless of programmatic area (such as personnel), or that require specialized technical expertise which can be shared by program areas (such as engineering). AMS identified twenty-one functional requirements divided between these two areas: thirteen in Administration and eight in Technical Services. Figure 5-1 illustrates the Washington Office organizational chart for Management Services.

Also discussed in this chapter are the functions associated directly with BLM's Office of the Director, such as the Office of the Budget and the Office of Congressional Affairs. Although these offices are positioned in the Office of the Director for increased visibility and emphasis, they share the same bureau-wide perspective as Management Services. AMS identified seven functional requirements for the Office of the Director. Figure 5-2 illustrates the appropriate BLM organizational components and their placement in the Washington Office.

The functional requirements cited in this chapter do not always correspond directly to the organizational units of BLM. Although some units focus on essentially one function, others perform multiple functions. To help correlate organizational entity with functional requirement, the mission/program/function chart in Figure 5-3 illustrates the mission of each organizational component, the programs associated with that component, and the functional requirements for each as defined by this study. This chapter concentrates on the role of each organizational level in performing these functions. It also provides summary observations of the functions performed by Management Services. The individual functional requirements for Management Services are described and discussed in Appendix C.

Figure 5-1. Washington Office Organization Structure for the Divisions of Administration and Technical Assistance.

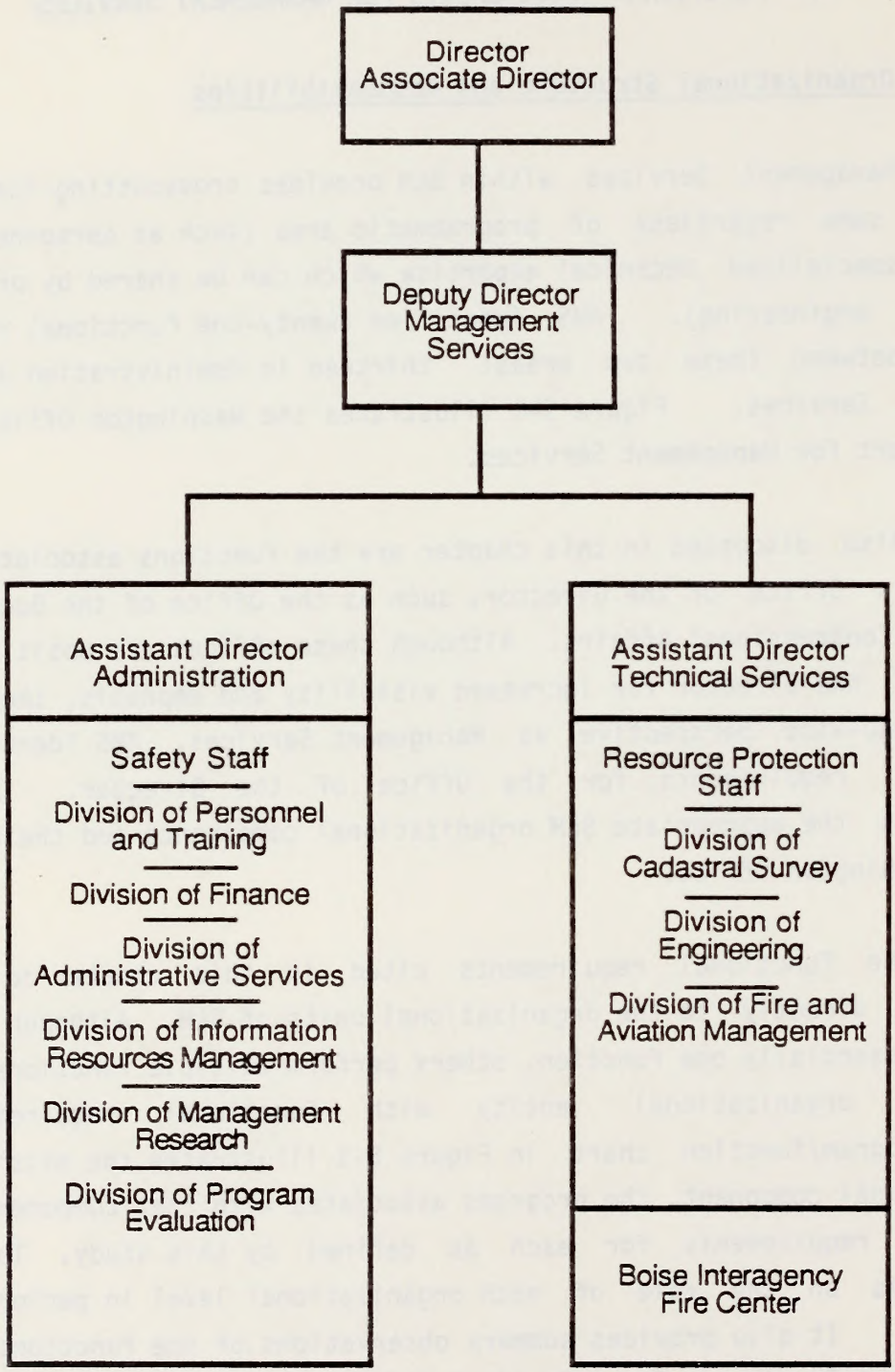


Figure 5-2. BLM Director Staff Organization.

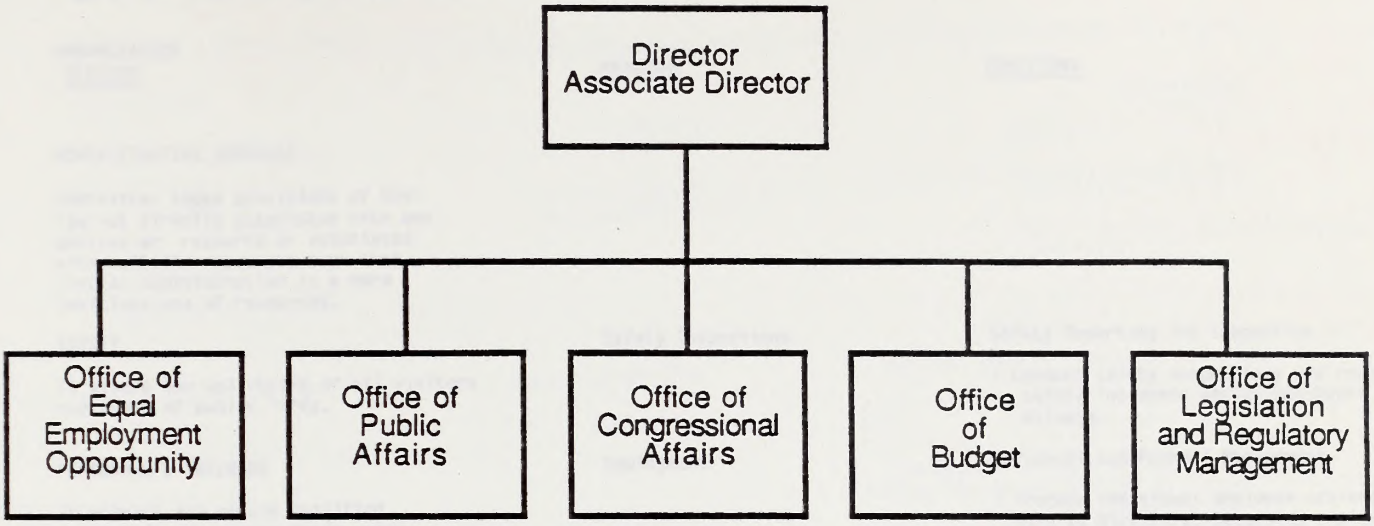


Figure 5-3. Mission/Program Function Chart For BLM Management Services.

ORGANIZATION MISSION	PROGRAMS	FUNCTIONS
ADMINISTRATIVE SERVICES Administer those provisions of the law not directly associated with any particular resource or associated with multiple resources such that central administration is a more judicious use of resources.		
SAFETY To assure the well-being of all visitors and users of public lands.	Safety Inspections	Safety Reporting and Inspection - Conduct safety inspections and report safety incidents versus man-hours and mileage.
PERSONNEL & TRAINING To attract and retain qualified personnel and improve their value to BLM through training and effective personnel policies.	Employment	Personnel and Payroll Management - Process individual employee actions such as Hire/Fire, Determine employee qualifications, Recruiting, Internal placement, and Employee relations
	Pay and Position Management	Position Management - Process actions concerning positions and organization, such as position classification, pay administration, and personnel management evaluations - Labor relations
	Employee Development	Training - Improve employee performance through training, performance evaluations, and incentive awards
ADMINISTRATIVE SERVICES To support the mission of other components of BLM with general administrative services as required.	Directives Management	See Records Management requirement
	Procurement	Contract Preparation and Control - Prepare and review RFP's for compliance with regulations as well as administer procurement - Establish and control contracts to supply material and services

Figure 5-3. Mission/Program Function Chart For BLM Management Services.

ORGANIZATION MISSION	PROGRAMS	FUNCTIONS
ADMINISTRATIVE SERVICES (Continued)	Property Management Support Services	Fleet Management and Facility/Property Inventories - Fleet management - Facility inventory - Property inventories
INFORMATION RESOURCES MGMT (WO, SO) "To provide information management support to the land management goals and objectives of the Bureau." and provide "bureauwide leadership and information support to resource administrative programs, planning, programming and budgeting fire management and cadastral survey, and other related support activities." -- '84 Information Systems Mgmt Plan	Information Systems	Information Systems Management - Set information standards and procedures - Provide support for administrative systems (not GIS) - Configuration management
	Telecommunications	Telecommunications Management - Maintain BLM data and voice programs, communications including Dialcomm and electronic mail, and coordinating radio communications - Monitor AOP and telecommunications technology used in predicting and fighting forest fires and coordinate BLM usage.
	Records Management	Records Management - Information collection program - Micrographics management - Responses to Freedom of Information Act, enforce compliance with Privacy Act, and monitor data security - Correspondence control: format, content, number of copies, filing procedures, etc. - Maintain the BLM manual - WP Support

Figure 5-3. Mission/Program Function Chart For BLM Management Services.

ORGANIZATION MISSION	PROGRAMS	FUNCTIONS
MANAGEMENT RESEARCH (WO)	Organization Analysis and Special Studies	Organizational Analysis
		- Report on BLM's progress concerning Reform 88
"Analyze and direct organization and management system changes and implementation" to "... provide for responsive decisionmaking at the field level."		- Controls Delegation of Authority
		- Answers inquiries by OMB or OPM on organization issues.
		- Impact of proposed changes on organization
-- '84 BLM Annual Report		- Propose new organizational structures in response to changes in BLM emphasis or mission.
PROGRAM EVALUATION (WO)		
To conduct "internal evaluations of BLM programs, general management, and special issues."	Program Evaluation	Program Evaluation
		- Set standards and procedures for program self-evaluations
		- Conduct independent or broad-in-scope evaluations
-- '84 BLM Annual Report		- Coordinate program evaluation teams
FINANCE	Financial Management Services	Management of Accounts
		- Management of accounts, monies collections, and billings.
To manage and control obligations and revenues against budgetary targets.	Financial Reports and Operations	Financial Reporting
		- Provides financial reports to DOI, Treasury, and OMB

Figure 5-3. Mission/Program Function Chart For BLM Management Services.

ORGANIZATION MISSION	PROGRAMS	FUNCTIONS
TECHNICAL SERVICES Provide technical expertise required bureauwide or by multiple program areas.		
RESOURCE PROTECTION STAFF "The Secretary shall issue regulations necessary to implement the provisions of this Act with respect to the management, use, and protection of the public lands, including the property located thereon.	Enforcement	Incident Investigation and Reporting - Active deterence - Arrange contracts with local law enforcement - Reporting incidents - Enforcement of Federal land use regulations
... The Secretary may authorize Federal personnel or appropriate local officials to carry out his law enforcement responsibilities with respect to the public lands and their resources. Such designated personnel shall receive the training and have the responsibilities and authority provided for in the [FLPMA]." -- FLPMA, Sec. 303 (a) and (c) (2)	Investigation	- Documenting incidents disposition - Identifying related incidents or trends - Coordination with other law enforcement agencies
CADASTRAL SURVEY "The Public Lands shall be divided by north and south lines run according to the true meridian, and by others crossing them at right angles, so as to form townships of six miles square....These field-books shall be returned to the Secretary of the Interior... who shall cause therefrom a description of the whole lands surveyed to be made of townships and fractional parts of townships contained in the lands...This plat shall be recorded in books to be kept for that purpose; and ... copies shall be sent to ... the Bureau of Land Management." -- 43 U.S.C. 751	Cadastral Survey	Conduct Cadastral Surveys - Schedule and conduct all original surveys and resurveys - License mineral surveyors - Conduct title boundary verification and adjudication - Establish standards for surveying and recording land Maintain Field Notes - Provide technical computing support to survey teams by automating field notes.

Figure 5-3. Mission/Program Function Chart For BLM Management Services.

ORGANIZATION MISSION	PROGRAMS	FUNCTIONS
CADASTRAL SURVEY (Continued)		Monitor Use of Outside Agency Funds - Monitor use of surveying funds by requesting agency
ENGINEERING "... Construct and maintain... facilities to provide services to visitors to public lands." -- '84 BLM Annual Report	Geographic Information Systems	Cartographic Services - Support Map Overlay and Statistical System (MOSS) vector system and IDEMS raster system
	Mapping	- Develops map overlays for GIS information
	Facility Maintenance	Facility Maintenance - Inventory, design, and improve facilities
	Transportation Systems	Transportation System Design and Maintenance - Design road systems and bridges - Supervise construction
FIRE AND AVIATION MANAGEMENT Protect "property and natural resource values on the public lands from wildfire, rehabilitating areas damaged by fire, and ensuring that 'prescribed burning' designed to accomplish a variety of resource management objectives is safely conducted and controlled." -- '84 BLM Annual Report	Fire Management	Prevent, Predict, and Fight Wildfire - Predict wildfire (LDS, RAWS, & IAMS Systems) - Prevent wildfire, through "Prescribed Burning" - Stage fire fighting resources for most effective response and manage fire-fighting: communications, personnel, and material
	Technology Coordination	See Telecommunications Management function
	Aviation Management	Coordinate Aviation Requirements - Coordinates aircraft requirements with DOI, Office of Aircraft Services

Figure 5-3. Mission/Program Function Chart For BLM Management Services.

ORGANIZATION MISSION	PROGRAMS	FUNCTIONS
FIRE AND AVIATION MANAGEMENT (Continued)		- Arranges "special service contracts," such as spraying - Provides policy and guidance on appropriate aircraft for special use - Investigates safety incidents
OFFICE OF THE DIRECTOR Support BLM-wide functions or programs which are important enough to warrant the attention of the bureau director		
EQUAL EMPLOYMENT OPPORTUNITY Assure BLM is in compliance with the Civil Rights and Affirmative Action initiatives.	Affirmation Action Program Development and Evaluation	Report EEO Compliance - Perform statistical comparison of BLM population with local populations, target pinpoint Civil recruiting, and identify minority recruits both within BLM and outside - BLM quarterly report on EEO compliance
	Conflict Management	Investigate EEO Complaints - Investigate and adjudicate complaints
BUDGET	Budget Development	Budget Development - Develop future budgets from SO plans.
	Budget Operations	Budget Operations - Monitor operations against projections - Prepare budget targets
EXTERNAL LIAISON ORGANIZATIONS Three offices are grouped as external liaisons. They share two funtions, although their specific audiences are quite different		

Figure 5-3. Mission/Program Function Chart For BLM Management Services.

ORGANIZATION MISSION	PROGRAMS	FUNCTIONS
PUBLIC AFFAIRS (WO)		External Liaison Queries
Keep both the public and BLM field personnel informed on issues of interest to the public.	Resource Information	- Compose communications to the public: speeches by BLM staff, press releases, etc.
		- Answer general public questions
		- Prepare FLPMA report
	Publications and Communication Services	- Produce or collect the artwork, photos, and video required to support communications to the public.
PUBLIC AFFAIRS STAFF (SO)	State Government Affairs	- Counterpart to WO Congressional Affairs
LEGISLATION AND REGULATORY MANAGEMENT	Legislative and Regulatory Management	- Prepare and communicate BLM's official position regarding legislation through actions such as: prepare briefings on draft legislation and regulations, review questions to solicitor for phrasing, attend legislative/regulatory hearings and participate if necessary, and assure proper clearances and proper distribution
CONGRESSIONAL AFFAIRS (handled by PA in State Offices)	Congressional Liaison	- Take calls from Congress and staff on issues and facilitate communication: i.e., expedite reports, set up briefings, etc.
	Committee Management	- Assist 94 advisory committees with chartering, rechartering, and membership
	Controlled Mail	- Identify and track controlled mail against due dates
		External Liaison Document and Material Production
	Resource Information - Public Affairs	- Compose communications to the public: speeches by BLM staff, press releases, etc.
		- Prepare FLPMA report

Figure 5-3. Mission/Program Function Chart For BLM Management Services.

ORGANIZATION MISSION	PROGRAMS	FUNCTIONS
CONGRESSIONAL AFFAIRS (continued)		
	Publications and Communication Services - Public Affairs	- Produce or collect the artwork, photos, and video required to support communications to the public.
	State Government Affairs - Public Affairs	- Counterpart to WO Congressional Affairs
	Legislative and Regulatory Management	- Prepare BLM's official position regarding legislation through actions such as: Draft legislation and regulations, prepare briefings on same, review questions to solicitor for proper phrasing, prepare signing/veto Presidential statements, and assure proper clearances and proper distribution
	Congressional Liaison	- Expedite reports, set up briefings, etc.
	Committee Management - Congressional Affairs	- Assist 94 advisory committees with chartering, rechartering, and membership

Management Services functions are performed at many levels in BLM's organization. The level at which an administrative or technical activity is performed varies not only from activity to activity but also from State Office to State Office. BLM provides great flexibility to the State Office Directors to structure their state office organization in accordance with their workload. Since each State Office emphasizes different programs, the volume of administrative or technical support required dictates the placement within the organization of those support staff. However, as Figure 5-4 illustrates, the operational level for most of the administrative and technical functions is the State or District Office.

5.1.1 Washington Office

The Washington Office is the administration and policy headquarters for BLM. The Washington Office staff are responsible primarily for policy and oversight activities. They also develop operational procedures and conduct procedural reviews of the field offices. The primary operational support for BLM's administrative functions comes from the Denver Service Center.

For administrative functions, the Washington Office operates on two levels: day-to-day operations and policy. In day-to-day operations Washington Office operates similar to a State Office. The Washington Office Personnel and Training Division process the Washington Office payroll and other personnel actions through the Denver Service Center and plans their training. The Washington Office Administrative Services Division conducts Washington Office procurements and office operation activities. The one exception is ADP, where Eastern States Office provides operational support for WO in ADP.

On a higher level, the Washington Office provides policy, oversight, and direction for all administrative and operational functions. For example, the Washington Office Division management appoint all personnel over GS-13 and control the budget process. The Washington Office also provides specialists in the Washington Office Management Research Division and the Washington Office Program Evaluation Division to perform procedure assistance and management reviews, assess state conformance with BLM policy and procedures, and improve communication with the field on policy issues.

Figure 5-4. The operational level for most Management Services functions is the State or District Office.

FUNCTIONAL REQUIREMENT	RESPONSIBLE WO DIVISION	OPERATIONAL LEVEL	SIZE/SCOPE	EXISTING SYSTEMS
Safety Reporting and Inspection	WO-811	State	5,000 vehicles	Safety Records System - OSC
Personnel and Payroll Management	WO-830	State, Large Districts	2,000 actions/yr	PAY/PERS Vacancy List SF52 Tracking Table of Org.
Position Management	WO-830	State	10,800 BLM Positions Audit 25%/yr	PAY/PERS SF52 Tracking Table of Org.
Employee Development	WO-830	State	75-200 records/State 10,000 BLM Staff	Training Catalog Tracking System Track. Sys. - Oregon
Contract Preparation and Control	WO-850	District, State WO, OSC	30 Contracts/staff 90 Contract/Staff in Oregon	PITS - Oregon Bidders Lists PTS - OSC PO Track - Montana
Fleet, Property, and Facility Management	WO-850	State	5,000 Vehicles 110,000 Personal Property $500M Real Property	APPS - OSC APPS - Colorado Motor Vehicle Sys Director's Digest
Information Systems Management	WO-870	State	13 ADP Centers	None
Telecommunications Management	WO-870	State, District	125 Telephone Companies	Freq Mgmt System
Records Management	WO-870	State	185,203 cu ft of records 77,063 Magnetic tapes	Corres Cntl - Montana Library Ref Sys On-line Comp Lib Ctr Direct. & Memo System Controlled Mail Sys.
Organizational Analysis	WO-840	WO, OSC	N/A	FMS PAY/PERS WBO Matrix MBO System
Program Evaluation	WO-860	WO, OSC	3 Management, 4 Program and 8 Tech/Admin Evaluations/Yr.	None

Figure 5-4. The operational level for most Management Services functions is the State or District Office.

FUNCTIONAL REQUIREMENT	RESPONSIBLE WO DIVISION	OPERATIONAL LEVEL	SIZE/SCOPE	EXISTING SYSTEMS
Financial Handling Accounts	WO-820	District	130,000 Payments/Yr.	FMS
Financial Reporting	WO820	State	N/A	FMS
Incident Investigation and Reporting	WO-711	State, WO	4,000 Outstanding Cases 63 Law Enforcement Agreements	LIOS LEAOS
Conduct Cadastral Surveys	WO-720	State, Large Districts	119,005 acres surveyed 1,844,151 resurveyed	Cadastral Field Notes in OSC and Colorado
Maintain Cadastral Field Notes	WO-720	State	1,423,144,011 acres	Cadastral Field Notes in OSC and Colorado
Track Use of Outside Agency Funds	WO-720	State, Large Districts	89,513 acres surveyed 777,576 resurveyed	FMS
Cartographic Services	WO-730, WO-720	State	341 million acres to Map	MOSS IOEMS ORCA
Facility Construction and Maintenance	WO-730	State, Large Districts	15,000 buildings 406 recreation areas 55,097 cub ft dikes/yr 1,351,900 linear ft. of pipe/yr.	JOR FMS HEC 4 & HEC 5 Dam Safety System
Transportation System Design and Maintenance	WO-730	State, Large Districts	65,000 miles of road	ROS - Forest JOR FMS
Predict, Prevent, and Fight Wildfire	WO-740	District	Over 1 million acres a year burn	AFFIRM BEHAVE IAMS Fire Reporting Sys
Coordinate BLM Aircraft Requirements	WO-740	State	$40M/yr	OAS Reporting Sys
Report EEO Compliance	WO-120	State	10,000 BLM staff	FMS PAY/PERS
EEO Conflict Resolution	WO-120	State	146 complaints/yr.	FMS PAY/PERS

Figure 5-4. The operational level for most Management Services functions is the State or District Office.

FUNCTIONAL REQUIREMENT	RESPONSIBLE WO DIVISION	OPERATIONAL LEVEL	SIZE/SCOPE	EXISTING SYSTEMS
Budget Development	WO-160	State	$418,000,000 Budget/Year	FMS WBO Matrix MBO
Budget Operations	WO-160	State	$418,000,000 Budget/Year	FMS WBO Matrix
Exterior Liaison Queries	WO-130, WO-140, WO-150	WO, State	N/A	None
Exterior Liaison Document/Material Preparation	WO-130, WO-140 WO-150	WO, State	N/A	None

For technical services, only the policy and oversight level operate out of Washington. These services are of a highly technical or specialized nature periodically required by the field office to properly execute their land management responsibilities. This includes services such as engineering, cadastral surveying, and resource protection (law enforcement). Since the Washington Office has no direct land responsibilities, it has no need for operational staff in these areas. BLM lands east of the Mississippi are administered by the Eastern States Office in Alexandria, Virginia.

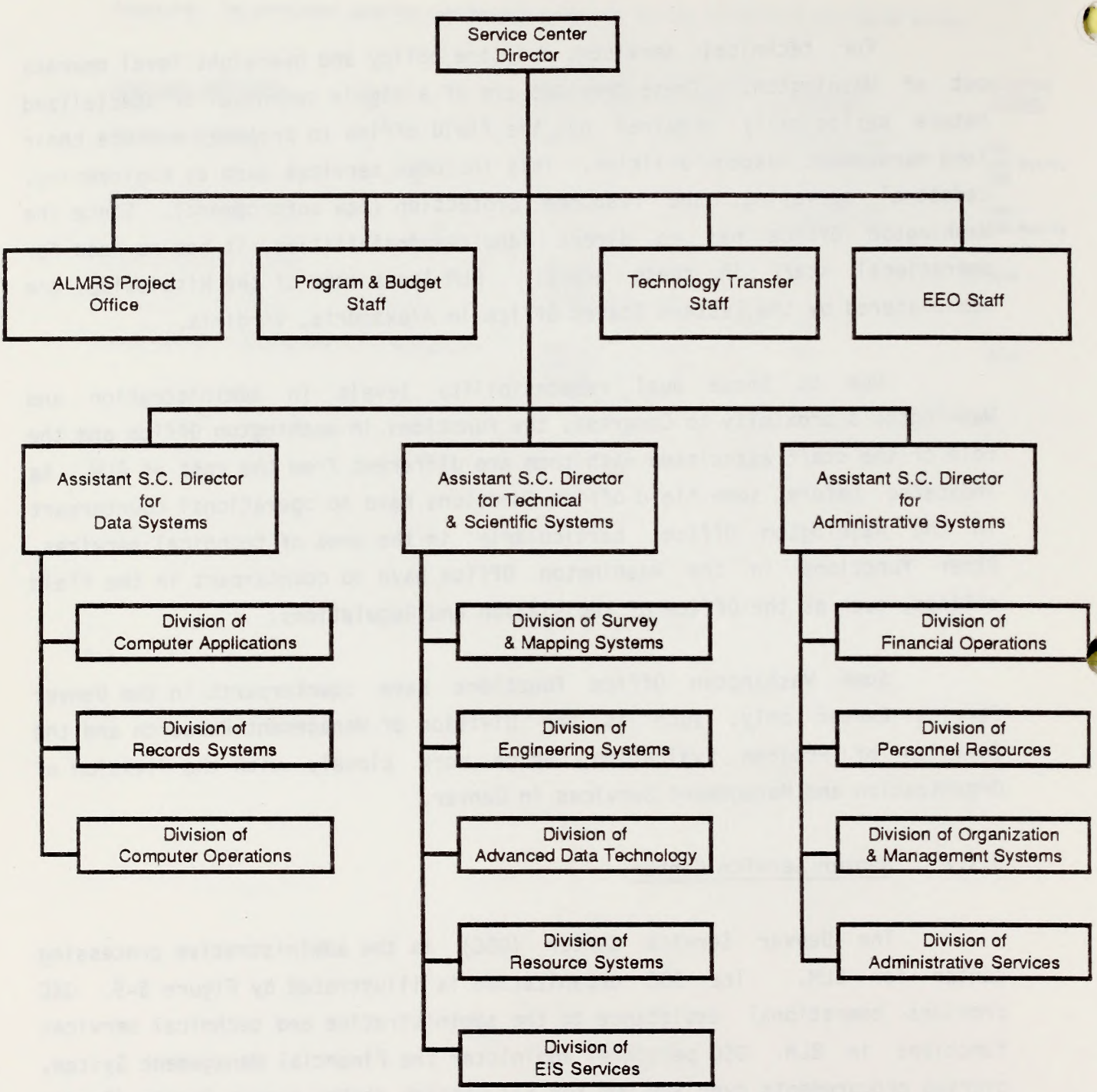
Due to these dual responsibility levels in administration and Washington's proximity to Congress, the functions in Washington Office and the role of the staff associated with them are different from the rest of BLM. As indicated before, some field office functions have no operational counterpart in the Washington Office, particularly in the area of technical services. Other functions in the Washington Office have no counterpart in the field offices, such as the Office of Legislation and Regulations.

Some Washington Office functions have counterparts in the Denver Service Center only, such as the Division of Management Research and the Division of Program Evaluation, which work closely with the Division of Organization and Management Services in Denver.

5.1.2 Denver Service Center

The Denver Service Center (DSC) is the administrative processing center for BLM. The DSC organization is illustrated by Figure 5-5. DSC provides operational assistance to the administrative and technical services functions in BLM. DSC personnel administer the Financial Management System, oversee procurements over $25,000 for all western states except Oregon (Oregon has exceptionally high procurement volume due to the timber program), and act as the central contact for BLM systems. DSC is also BLM's major data center, operating a Honeywell DPS-8/70 mainframe computer. The Honeywell Level 6 minicomputers currently in the State Offices were originally installed as data

Figure 5-5. SERVICE CENTER ORGANIZATIONAL CHART



concentrators to feed DSC. DSC is still the hub of BLM ADP activity, even for systems operating on other bureaus' equipment such as the Bureau of Reclamation PAY/PERS system and the Road Design System provided by the Forest Service.

Most BLM work of a highly technical nature is done by DSC or with DSC support. For example, Denver develops sophisticated bridge or building designs for all the state offices, as well as a large share of the ADP software. Most major software applications (with some exceptions like ORCA) are operated, built, and enhanced by DSC.

DSC provides extensive data entry support to the Bureau. This includes approximately 10,000 Time and Attendance Sheets every two weeks as well as Bureau-specific applications, such as the Job Documentation and Reporting System. DSC also performs the data entry function for applications not operated at DSC. For example, they key data for the Road Design System, an engineering support tool provided by the Forest Service. The level of data entry support provided by DSC differs from state to state. Some states or districts transfer their entire data file electronically all at once for the same application that other states send hand printed forms to DSC for keying.

5.1.3 State Offices and Large District Offices

At the State Office level, Administration functions are performed by the Division of Administration. Technical Services become part of the Division of Operations. Functions that are performed by divisions at Washington Office are performed by branches at the State Office or assigned to one or more individuals, sometimes as a colateral duty. The State Offices act as concentrators for the administrative paperwork of many programs such as the budget, where detailed Annual Work Plan data is gathered by the Resource Areas. They are also the initial level of support for others. For example, Aviation Coordinators, Special Agents in Charge for Resource Protection, and Safety Officers do not generally operate below the state office level, although a staff member at the District level may be assigned responsibilities as colateral duty. The State Offices, in general, are also responsible for maintaining the public rooms. Some State Offices place this responsibility in the Division of Operations. Others place it within Lands and Minerals.

Many variations of the "typical" State Office organization exist, usually dictated by size or program activity level. For example, Oregon is such a large state office -- with 1600 staff -- that many of the functions performed only at the State level in other State Offices are performed at District Offices in Oregon; similarly, district functions are performed at some Resource Areas. Also, some States have one or two unusually large Districts which take on some State Office functions. For example, the high level of surveying activity in the Grand Junction District Office in Colorado provided justification for their own Cadastral Survey Branch. At the other end of the spectrum, Montana State Office provides all procurement support for some of its smaller Districts because their procurement volume is too low to justify their own procurement staff.

5.1.4 District Offices and Large Resource Areas

In most States, the District Offices are the lowest level of administrative and technical support. They provide the first level of expertise for engineering, ADP support, procurement, budget, and personnel. In larger States, such as Oregon, a Resource Area may have sufficient activity in a program or technical activity, such as engineering for dams or cadastral surveying, that the Resource Area may be assigned staff to perform these functions. Whether these staff are considered part of the Resource Area staff depends on the nature and duration of the assignment.

District Offices often provide data entry support for the Resource Areas and usually have an ADP technical specialist available to help with software or hardware problems with both telecommunications and ADP.

Some Resource Areas have enough volume of a particular activity that they perform some functions as if they were a district office, such as the Judith Resource Area in Montana which has its own civil engineer.

5.1.5 Resource Areas

Other than large resource areas which may perform some activities normally associated with districts, the resource areas have very little responsibility for administrative and technical support functions. These remaining responsibilities are assigned to existing staff as colateral duties or retained by the resource area manager.

5.2 Summary of Functional Requirements and Key Observations

During the staff interviews and studying existing documentation on BLM processes and procedures, AMS was able to make some observations concerning ADP systems support for the Management Services functions. The systems AMS has identified, which support Management Services, are listed in Figure 5-6. In this section are included those observations of particular interest to BLM, either due to their importance or because of the simple actions BLM could take to resolve them.

- **Management Services functions are supported by dozens of ADP systems.** Forty-three were identified during the interviews: twenty-six for Administration and twenty-seven for Technical Services. Many of these systems are local applications developed and used in a single State, however, and there are probably other systems used in other offices.

- **Growth in the administration and technical services area is driven by four factors:**

  -- **Legislation ...** Legislation often results in additional reporting requirements, new procedures, changes in fund processing, or changes in staffing. The Federal Land Policy Management Act defined the way BLM performs its mission. Much of the technical support required by BLM is used to develop the Resource Management Plans which FLPMA requires.

  -- **BLM staff size ...** As the number of BLM staff fluctuates so does the amount of administrative and technical support required. More staff require more personnel activity, more engineering to house them, more procurement to supply them, and more training resources. A staff reduction has the opposite effect.

  -- **Programmatic activity in operational divisions...** Programmatic activity increases cause increases in technical support requirements. For example, increased timber activity requires more engineering to build roads. Increased oil and gas activity

Figure 5-6. Most of the BLM Technical and Administrative Systems are Local or User Local Data.

	System	Generalized Systems	Generalized Systems Which Use Only Local Data	Locally Developed Systems with Local Data
1	Safety Records System		•	
2	PAY/PERS	•		
3	Vacancy List			•
4	SF 52 Track			•
5	Table of Organization			•
6	Training Catalog			•
7	Training Tracking System			•
8	Training Tracking System - Oregon			•
9	Procurement Information Tracking System - Oregon			•
10	Bidders List			•
11	Procurement Tracking System - DSC		•	
12	Purchase Order Tracking - Montana			•
13	Automated Personal Property System - DSC		•	
14	Automated Personal Property System - Colorado			•
15	Motor Vehicle System	•		
16	Directors Digest	•		
17	Manpower Correlation System		•	
18	Frequency Management System			•
19	Correspondence Control - Montana			•
20	Library Reference System			•
21	On-line Computer Library System			•
22	Directives & Memos System	•		
23	Controlled Mail System	•		
24	FMS	•		
25	Workload By Objectives (WBO) Matrix	•		
26	Management By Objectives (MBO)		•	
27	Land Intersat Detection System (LIDS)		•	
28	Law Enforcement Automated Detection System (LEADS)		•	
29	Cadastral Field Notes - DSC		•	
30	Cadastral Field Notes - Col			•
31	Map Overlay and Statistics (MOSS)		•	

Figure 5-6. (Cont'd)

	System	Generalized Systems	Generalized Systems Which Use Only Local Data	Locally Developed Systems with Local Data
32	IDEMS		•	
33	Oregon Recordation Case Access (ORCA)		•	
34	Job Docmentation and Reporting (JDR)		•	
35	HEC 4		•	
36	HEC 5		•	
37	Dam Safety System		•	
38	Road Design System (RDS)		•	
39	AFFIRM	•		
40	BEHAVE		•	
41	Initial Attack Management System (IAMS)		•	
42	Fire Reporting System (FRS)	•		
43	Office of Aviation Services Reporting System (OAS)		•	

creates more demand for cartographic services to update maps with new wells. Administrative requirements also increase: more supplies, more staff, and more funding.

-- **Directives from the Director or the Secretary of the Interior**...Directives from the Director or the Secretary of the Interior usually involve major changes in organization, program emphasis, or policy which always impacts administration. For example, the merger of MMS functions into BLM generated extensive changes to the financial record keeping of BLM. It also had significant impact on the employee management and position management functions. BLM had to absorb MMS staff into the BLM organization, but the position grading in BLM was not consistent with the grading in MMS. Similar positions in BLM and MMS were higher in grade in MMS. BLM had to re-evaluate and regrade these positions. The engineering staff had to find quarters for the new staff.

o **Federal Management Improvement initiatives have a major impact on Management Services functions and systems.** Initiatives and directives such as Reform '88 and A-76 impact the administrative and technical functions. In BLM, Reform '88 has pressed the administrative functions to operate more efficiently; BLM staff anticipate further pressure in this area. Projects within DOI are underway to consolidate administrative systems and select lead bureaus to support certain administrative functions for the entire department. Personnel/Payroll functions are already being supported for most bureaus by the Bureau of Reclamation's PAY/PERS system and the Financial Integration Review for Management is examining financial management consolidation.

o **Very little data sharing is required between States or Districts.** The states have little interest in the administrative data for other states. Over 60% of the administrative systems identified are locally developed applications or BLM-wide applications using only local data. For example, the DSC Procurement Tracking System is a

general application used to process localized data. It is used by a state only to access the records for that state but it is a general application usable by other states.

- **Many of the administrative support systems extremely localized and uncoordinated.** As Figure 5.6 illustrates, of the twenty six administrative systems listed, half are local applications. Several, such as the Training Tracking System, the SF 52 Tracking System, and the Table of Organization System, have been developed by several states independently.

  The majority of the administrative systems appear to be reporting on a base of data, not performing extensive calculations. These applications could be supported by a generic report writing system similar to ASPEN/2 but a more commercially used product would provide better transportability and a larger support pool.

- **ADP applications identified as "systems" are often a collection of system tools rather than integrated software products.** For example, some of the data within the same "system," the Financial Management System, is entered twice: once into the Perpetual Inventory Subsystem, and once into the Travel Advance Subsystem. Similarly, the Geographic Information System (GIS) is a collection of software products which are used to process geographic information, but they do not comprise a cohesive system.

- **Delays in data entry often impede functional operations in administrative and technical systems.** Many systems are loaded with data at DSC by keying information from forms received through the mail. Especially with the technical support systems, it is not possible for a key-entry clerk to tell when a number is unreasonable or incorrect. The Job Documentation and Reporting System and Road Design Systems are good examples. Both systems require handwriting information on data entry forms and mailing them to DSC where they are keyed. Keying errors are common and create significant delays. In addition to the impact on project schedules, these delays generate

frustration which discourages further system use. Road design engineers routinely allow sixty to ninety days in their schedules for turnaround from the RDS system. One engineer said he would give up entirely if he did not rely so much on the results.

The JDR system also experiences delays in data entry and re-entry of incorrect data. If the data was incorrect, the entire incorrect record must be re-entered into JDR. Data which was correct the first time may be miskeyed the second time.

Another source of data entry delay is BLM field staff's extensive use of the U.S. Mail to transmit data and documents. For example, data input is transmitted via mail for JDR, RDS, PAY/PERS time and attendance, APPS, and the Safety Records System. Most reports are transmitted by mail or air express. This contributes to slow turnaround and is particularly frustrating in the data entry situation because error reports are also transmitted by mail. So data entry with only one set of revisions can take almost two weeks simply due to mail delays. Many users would prefer to key their information directly into the system or onto some electronic medium where it could be transferred into the system later.

- **The BLM project managers expressed a need for a simple project cost tracking system.** State, district, and resource area staff all indicated a need to be able to track the financial status of projects more closely against their budgets than the Financial Management System allows. This is particularly important to the technical services staff since much of their work is project oriented. FMS had been used in the past as a project cost accounting system, but it is not designed for that purpose. It is a budget system. FMS was recently redesigned to be more streamlined. As a result, FMS reports are more usable than before but managers still maintain unofficial, 'cuff', records to monitor project budgets.

FMS reports are accurate from an accounting perspective but not in the view of project managers, primarily due to labor cost projections. FMS must project labor expense to the end of the accounting period to accurately reflect BLM's financial position. However, since BLM staff may work on many projects, these projections often do not reflect the project's actual status as the project manager knows it.

In the case of Cadastral Survey, this is costing BLM in both absorbed costs and allocated funds not spent. Almost half of the acres surveyed by Cadastral are not for BLM. They are for other Federal agencies such as the Bureau of Indian Affairs or for private organizations. Each of these organizations pays BLM for their surveys, and many set a fixed funding level. If BLM spends more or less, the Bureau must absorb the cost or reimburse the client. BLM alone budgeted $24,800,000 for surveying in 1985 and outside organizations represent comparable amount. The State Offices find it difficult to manage these projects using FMS. FMS aggregates all of the cadastral projects for a State into one code. Eastern States alone has 4900 individual cadastral projects. FMS support staff are working with cadastral survey to improve the support FMS provides for project-oriented work.

- **ADP training and system user documentation are major concerns among the BLM management and the field staff.** Training was mentioned in BLM staff interviews at every level of the organization. The field personnel are concerned that they will be given new systems without adequate training to use them. For example, one personnel clerk in Oregon has never received any training on the PAY/PERS system she uses regularly.

Lack of training causes underutilization of existing capabilities. For example, an archeologist in Montana learned of an archeology system he could use to track archeological sites; unfortunately, he became so frustrated trying to learn how to access and use the system he gave up. In another case, we were told that the Automated Personal Property System was delivered to a district with no instructions and no documentation on the systems purpose.

- **There is a growing demand for End User support.** End user support comprises activities designed to make system use easier (such as hotlines, system user documentation and manuals, tutorial software, and training) and to bring computer capability closer to the end user (such as information centers, and end user groups). Lack of end user support is already a problem with software developed by other district or state offices. Half of the administrative support systems identified were either entirely local or generalized systems using local data. Application training and documentation have not kept pace. As more applications have developed for the Level 6s, DSC and the states have begun sharing software with other states. These software packages often leave the new user on his own. As BLM's staff become more familiar with technology, more field staff will be doing computer work. Users will need someone to answer questions.

- **Communication among the State Offices and Denver Service Center on ADP development appears to be limited.** Staff in the field offices feel that DSC is developing software without adequate user input. Also, DSC is not kept informed of State Office system development activity. For example, DSC developed an Automated Personal Property System for State Office and DSC use, even though the Colorado State Office had already developed its own APPS which provided more functionality. CSO now enters data into both systems. In another example, the Montana Cadastral Survey Branch received a software product built by DSC which is inappropriate for the survey techniques used in Montana. We were told that the software was delivered without prior notice, documentation, or training.

- **ADP planning must be extended to include the user community more effectively.** The majority of the operational work is done in the field at the District Office or Resource Area. The first level of technical and administrative support is generally at the District Office. The field staff feel the systems development is focused on reporting requirements to DSC and WO rather than program operation. For example, the FMS system provides adequate managerial support but is weak in providing project manager support. For BLM to increase

the effectiveness of the ADP support provided to its field staff, ADP organizations in BLM must identify the field needs and incorporate them into their ADP plans. This cannot be done if the user remains outside the planning process.

For BLM increase the effectiveness of the ADP support for its field staff, ADP organizations must identify the field needs and incorporate them into their ADP plans. This cannot be done if the user remains outside the planning process.

- **Telecommunications problems seem to center on reliability and port access, not capacity.** The technical support staff responsible for telecommunications in the states found no load capacity problems with their networks. This was substantiated by the field staff. Most of the field's telecommunications problems appeared to involve port access. To use the DSC system from the District Office, the user needs to get a port to the State system, then a port to the DSC IMS communications switch, and then to the particular system required. Any of these legs could fail and they often do. Communication quality is also poor in some remote areas. In Eastern States the communication problems were so consistently bad that they air express their FMS information to DSC for key entry rather than attempt on-line data entry.

- **Technical support staff make extensive use of external analytical programs.** The engineering staff use software on systems outside BLM, particularly software on the Forest Service computer in Fort Collins. These include Road Design Systems for road design, Hydrology Systems to study dam construction and pipelines, and some facility management software they are just learning about. The fire management staff also use Forest Service software for fire prediction (BEHAVE) and fire historical information (AFFIRM).

- **Reports generated by some of the administrative systems are unused or difficult to use.** For example, ESO does not use 80% of the reports from PAY/PERS. The EEO office in ESO finds the microfiche difficult to use. The budget analyst in Montana says the FMS computer printouts are bulky and difficult to distribute. Both field and headquarters staff have suggested that users unfamiliarity with how to use some of the reports may be part of the problem. BLM should use techniques to improve user report usage such as user training, report redesign, or printing reports on 8 1/2 x 11 paper.

5.3 Functional Requirements

Immediately following is the index for Appendix C, which contains the descriptions of the functional requirements identified for Management Services. These descriptions include the associated programs, current automated systems supporting the function, a description of the function and how it is performed now, the current performance and sizing requirements, and finally the details on supporting systems.

These descriptions are based on interviews with BLM staff and BLM internal documentation. These listings do not necessarily imply that the current function should be automated. Rather they are an attempt to accurately describe the functions and their level of automated support.

Figure 5-7

Appendix C Index

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6. LOCAL OFFICE FUNCTIONAL REQUIREMENTS

6.1 Summary of Local Office Processing

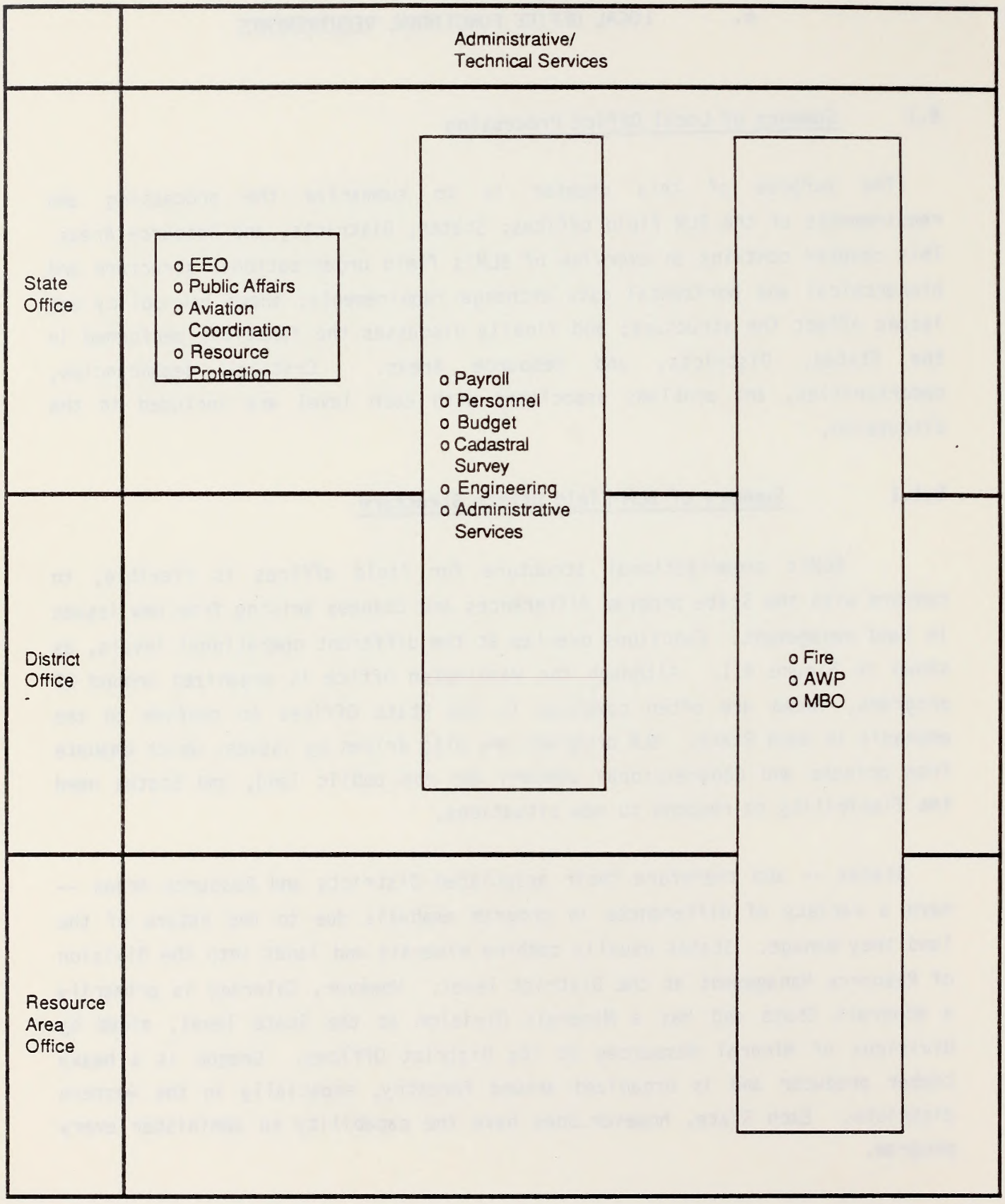
The purpose of this chapter is to summarize the processing and requirements of the BLM field offices: States, Districts, and Resource Areas. This chapter contains an overview of BLM's field organizational structure and hierarchical and horizontal data exchange requirements; shows how policy and issues affect the structure; and finally discusses the functions performed in the States, Districts, and Resource Areas. Critical dependancies, opportunities, and problems associated with each level are included in the discussion.

6.1.1 Summary of BLM Field Office Structure

BLM's organizational structure for field offices is flexible, to conform with the State program differences and changes arising from new issues in land management. Functions overlap at the different operational levels, as shown in Figure 6.1. Although the Washington Office is organized around 22 programs, these are often combined in the State Offices to conform to the emphasis in each State. BLM programs are also driven by issues, which emanate from private and Congressional concern for the public land, and States need the flexibility to respond to new situations.

States -- and therefore their associated Districts and Resource Areas -- have a variety of differences in program emphasis due to the nature of the land they manage. States usually combine minerals and lands into the Division of Resource Management at the District level. However, Colorado is primarily a minerals State and has a Minerals Division at the State level, aided by Divisions of Mineral Resources at its District Offices. Oregon is a heavy timber producer and is organized around forestry, especially in the western districts. Each State, however,does have the capability to administer every program.

Figure 6-1. BLM functions overlap at different operational levels.



	Lands and Renewable Resources
State Office	o Maintain Land Records o Program Oversight o Technical Expertise/ Modeling o Workload Statistics o Case Processing -- Sales -- Exchanges -- Rights-of-Way -- Withdrawals -- Permits/ Leases o Studies -- Rangeland -- Forestry -- Wildlife -- Culture -- Wilderness
District Office	o RMP/Other Planning o Timber Management o Rangeland Monitoring o Improvements -- Rangeland -- Wildlife Habitats -- Forestry o Inventories o Timber and Land Appraisals o Permits, Leases
Resource Area Office	

	Energy and Minerals
State Office	o Adjudication and Leasing -- oil and gas (competitive, OTC, SOG) -- coal -- other non-energy minerals -- PRIA o Mining Claims Administration o Regional Activity Planning o KGS and Drainage Analysis; KGS Clear-Listing o Coordinate with MMS o Maintain Lease and Mine Files o Economic Analysis o Lease Boundary Delineation o Other Geological Analyses
District Office	o Support RMP o Inspection and Enforcement o Environmental Analyses and Environmental Impact Statements o Salable Minerals
Resource Area Office	

New issues tend to drive the BLM organizational structure. When an issue is large enough to create a program within BLM, there is a rippling effect from Washington Office to the Resource Areas. The wild horses and burros program and the recent interest in wilderness areas are examples of BLM programs which have been added to the organization in the last decade. In energy and minerals, special organizations and procedures have been established in response to concern about oil and gas inspection and enforcement.

There is no standard size for a State, District, or Resource Area office. The Oregon State office is large with about 1,600 people, but other State offices can have as few as 300. Most Resource Area Offices seem to average about 10 people.

Offices are located primarily in the West, with the State Offices in centrally located cities. District Offices are usually located centrally in the area they manage, and may not be in a large town. In Oregon, the Lakeview District Office is in a smaller town than the Klamath Falls Resource Area Office. The Miles City District Office is in a fairly remote, small town. Of the 210 BLM field offices, 90 are co-located and the remaining 120 are separate from other BLM offices.

It appears that BLM office space is not always stable. While some offices (usually Resource Areas) are in BLM owned buildings, and will probably remain there, others rent space and may be moved. For example, the State Office in Denver, Colorado is currently in two buildings next to each other, but the lease on one building is not being renewed. The people will be moved to another part of town for a year, with plans to relocate everyone in one building the following year when the other lease is up.

BLM offices can be located in multiple story office buildings, or be all on one floor. Some are in compounds with several unattached, one floor buildings. The Portland Office is in a large multi-story building which has seperate elevators for different floors. In order to go from the seventh to the 15th floor, the staff has to go back to the first floor and take another bank of elevators.

6.1.2 Hierarchical Data Exchanges Between BLM Offices

For this discussion functions are classified as administrative or operational. Operational functions pertain to the program areas and to actions or conditions involving the land. Within these two functions, we identified three basic types of data at BLM: administrative, resource, and operations tracking. Administrative information includes personnel, budgets, procurement and contracting, and space; resource information comprises land characteristics to include minerals, soil, and vegetation; operations tracking includes any information on actions being taken on land resources, such as case actions, improvements, monitoring, and evaluation. Administrative information pertains only to administrative functions; both resource and operations tracking information are needed to perform operational programmatic functions.

BLM field offices perform services for one another and require all or some of these three types of information from each other. Field offices also exchange information with the Washington Office and the Denver Service Center. Information is sent up the field office levels and summarized at each level before being sent to Washington. Data to be loaded on the systems which DSC controls, and certain administrative information is sent directly from the different levels in the field through the BLM network to the Denver Service Center. Sometimes a State Office will print and mail a District Office information from DSC when transmission to the District is impeded by slow or unreliable telecommunications connections.

Generally, State Offices are responsible for administrative functions, the District Offices generally handle a combination of administrative and operational functions, and the Resource Areas are primarily operational. It is at the District that the line between administration and operations can be most hazy and variable.

State Offices exchange administrative data with their component District Offices. For example, Districts submit procurement requests for purchases over $10,000 to the State, where they are processed and returned to the

District. Districts similarly interact with their Resource Areas, performing administrative functions and tracking the status of operational programs in the Resource Areas. Summaries of administrative and programatic information are directed to the Washington Office on a regular basis. In the instances where States delegate authority differently, the same information flows occur; however, the lines of transmission may differ. States also receive guidance and policy information from the Washington Office, and send it (by mail or electronically) to their District and Resource offices; in some cases, Washington Office guidance might be sent directly to all field offices.

Districts require information from Resource Areas on work load statistics, case processing, and land characteristics information for resource analysis work. Both administrative and resource information is summarized by the State Office. The District Office usually performs the minerals program operational functions; the land programs operational functions are usually performed at the Resource Area Office. Workload and minerals characteristics data therefore would most often originate at the District Office rather than the Resource Area. Districts receive policy and guidance from the Washington and State Offices, and technical study and guidance information from the State Office. Other data can also be collected at the District level when Resource Areas lack equipment and technology to collect it.

Resource Areas are the primary data collection point for most BLM information. They collect resource information and create workload information through improvements, case work, and land monitoring. This data is sent to the District Office where it is summarized. Resource Areas receive policy and guidance information and technical expertise from all three levels of the BLM organization.

Our interviews of BLM personnel highlighted some problems in the communications between BLM offices. For example, some Washington Office divisions have trouble getting accurate summary information in a consistent format. The Job Document Reporting system did not have information needed by the Resource Areas to track jobs. RMAS did not provide turnaround quickly enough to generate timely bills for range operators. District and Resource Areas need more expedient transfer of memos from Washington; some are received 10 days after the stamped date.

6.1.4 Information Processing Between BLM Offices

Some horizontal information exchange occurs at BLM, particularly between those States or Districts which share borders. Even though they may focus on different functions, States, Districts, and Resource Areas all operate from the same laws and regulations. BLM manuals outline the procedures which they all use. They share many of the same automation tools. Broad studies (e.g. Regional Activity Planning for coal leasing) may span several States.

States, Districts, and Resource Areas do share resource and management information when an action occurs on land for which they share boundaries. In such cases the BLM office with the most land involved generally takes the lead in managing the action.

States also share ideas with each other, through committees and ad hoc program area meetings. For example, the Information Resources Managment Technical Advisory Committee (TAC) and a recent meeting of telecommunications personnel provide cross-State conversations on automation. Some States have set up their own committees; for example we found an ADP Advisory Committee in Medford District Office, Oregon. In addition to committees and meetings BLM has assigned representatives of program areas to DSC to voice program perspectives (i.e., the user representatives).

States also share software (such as ORCA) with each other. Oregon has even designated two Information Systems Branch staff members to give support to States as they install ORCA. Similarly, GIS development in Wyoming is being used as a model for development in Montana.

Although some sharing of ADP information occurs, we found situations in which one State was unaware of activities in another. For example, ADP coordinators were not aware of the work being done in other States. People working on GIS shared their ideas and concerns within the District but not with the GIS representatives in Washington. Colocated District Offices were not using the same systems for identical programs. The States we visited unanimously expressed a need for better information sharing, training and help with their ADP efforts.

6.2 Functional Requirements by Office

In most cases, there is no true norm for where BLM functions are performed in the organizational structure. For example, records management can be an Administrative or a Land and Renewable Resources function, depending upon the State. Consequently, requirements will vary from State to State, District to District, and Resource Area to Resource Area. This variation will have an impact on the appropriate ADP architecture, on systems sizing, and on subsequent support and maintenance. Also, the location of the field office will influence ADP support; finding technical expertise for a remote field office may be difficult. Some Resource Areas are co-located with District Offices; those which are not may require special support.

A look at the functions performed at the State, District and Resource Areas will bear out these observations. The following pages give an overview of the functions performed at the different field office levels and the requirements which emanate from them. Figure 6-2 gives a summary of requirements by field office.

6.2.1 State Office Responsibilities and Requirements

State Offices provide administrative support for the District Offices. Case tracking and adjudication is primarily the function of State Offices. Additionally, State-wide tracking and control is performed at some State Offices, such as the water resources work being done at the Montana State Office. The emphasis is on administrative and case processing work, however.

Administration. The State Offices act as concentrators for the administrative paperwork in many programs. They are also the lowest level for other functions, such as most aviation coordinators and special agents in charge of resource protection; a staff member at the District level is usually assigned safety responsibilities as colateral duty.

Many variations exist in the BLM administrative organization at the States and Districts, usually dictated by size or program activity level. For example, Oregon delegates many administrative functions to the District Office

Figure 6-2. To fully support the field offices, BLM needs automation which can accommodate a wide variety of functional requirements.

	Administration	Lands and Renewable Resources	Energy Mineral Resources
State Office	Data: Personnel, procurement, inventory, budget Capability: o Administrative systems support o Telecommunications	Data: Case information management statistics, resource inventory data Capability: o Summary workload o Modeling and analysis o Telecommunications o Access to outside data bases	Data: Case mineral resource and lease boundary information; inspection and enforcement Capability: o Summary DO workload o Telecommunications o Modeling and analysis tools -- economic -- geologic o Monitoring and tracking o Access to outside data bases
District Office	Data: Personnel, procurement, inventory, budget, summary workload Capability: o Administrative systems support o Telecommunications	Data: Case information, management statistics, land survey and characteristics, resource inventory Capability: o Draft/design o Modeling and analysis o Monitoring/tracking o Telecommunications o Access to other outside data bases	Data: Mineral resource information, case, lease boundary information, inspection and enforcement information Capability: o Modeling and analysis -- economic and geological o Monitoring and tracking o Drafting and design o Access to outside data bases o Telecommunications
Resource Area Office	Data: Budget targets, project financial reports Capability: o Telecommunications o Data entry	Data: Case, land characteristics, survey information, resource inventories Capability: o Monitoring and tracking o Geographic/characteristics data o Map overlay/analysis o Telecommunications o Cost benefit analysis	Data: Case, land characteristics, mineral information, survey information Capability: o Telecommunications o Monitoring and tracking o Modeling and analysis o Map overlay/analysis

level due to the size of the staff; Colorado has so much surveying activity that they delegate it to the Grand Junction District Office. At the other end of the spectrum, the Montana State Office provides all procurement support for some of its smaller Districts because their procurement volume does not justify local specialists.

Land and Minerals Programs. BLM's State Offices are responsible for land and renewable resources and energy and mineral programs on lands within their jurisdiction. Once again, State discretion in assigning functions is apparent. Accordingly, land, renewable resources, energy, and mineral operations are performed somewhat differently in each State.

States generally have more operational responsibilities for the minerals programs than for the Land programs. The primary operational responsibilities for the land programs at the State level are care of the Land Case records. In the Eastern States Office the Lands Division has jurisdiction over the Public Room which contains the Land Title records. In the western states, however, Public Room responsibility is assigned at the discretion of the Director; in Montana it was under the Minerals Division, and in Colorado it is under the Operations Division.

Operationally, the Minerals Division at a State Office is generally responsible for: adjudication of all lease applications; mining claims administration; and regional activity planning for coal. Some State Offices also perform inspection and enforcement activities and conduct resource analysis (e.g., KGS determinations).

Both program divisions are responsible for providing specialized expertise to District and Resource Area offices in technical disciplines; monitoring and evaluating District and Resource Area operations; and maintaining good relations with appropriate state and local governments.

To fully support State Office functional requirements BLM needs a system that will provide:

- Support for the administrative functions.
- Summary information describing District Office workloads.
- Access to land characteristics and survey data for special studies and data analysis.
- Case tracking information.
- Tools such as software for modeling and data analysis.
- Telecommunications capabilities to allow easy exchange of information with Washington, District Offices, and Resource Areas.

6.2.2 District Office Responsibilities and Functional Requirements

District Offices perform a mixture of operational and administrative duties, with a greater emphasis on the operational aspects of the programs than the State Offices. To repeat an already familiar phrase, the functions vary between States, as each State has the discretion to organize in the most efficient manner for its operational responsibilities.

Administration. In most States, the District Offices are the lowest level of administrative and technical support. They provide the first level of expertise for engineering, ADP support, procurement, budget, and personnel. District Offices often provide data entry support for the Resource Areas and usually have an ADP technical specialist available to help with software or hardware problems with both telecommunications and ADP.

Some Resource Areas, such as Grand Junction in Colorado, have such a large volume of activity that they perform some functions as if they were a District Office, such as procurement, engineering, and cadastral survey work.

Land and Mineral Programs. Land and mineral programs are combined at the District Office into the Division of Resource Management. The Division provides technical expertise, performs studies, sometimes is in charge of developing the RMP, and performs certain operational functions. The degree to which the District Offices perform operational functions depends upon the State, the needs of the Resource Areas, and the District Office staff. In addition, the District may draw on the expertise of Resource Area personnel in performing its own activities, for example, support for preparation of an Environmental Impact Statement or Resource Management Plan developed at the District Office.

Districts with significant energy and mineral programs perform operational functions done at the State level in other States, such as: evaluations of KGS and potential drainage cases; defining lease tract boundaries and establishing fair market value; performing inspections, and maintaining lease files.

District Office functions for Lands programs include providing technical expertise; occasionally, we found resource operations functions there. For example in eastern Oregon, which has a large rangeland program, a Range Conservationist said she spent 40% of her time doing range work usually performed at the Resource Area Office.

Typically, the land program responsibilities of the Districts are to: maintain case records (as in Grand Junction, Colorado); conduct improvement programs; perform inventories on BLM resources such as a forest inventory; provide technical expertise; monitor resources within the District; maintain statistics on District resources; maintain collections and perform studies; and monitor trends in resources. Functions performed in support of the State Office consist primarily of reporting on actions within the District for Annual Work Plan or annual statistics.

District Offices also are responsible for maintaining contact with other government land agencies in their area, and private citizens interested in land issues.

To fully support the District Office functions BLM needs a system that will provide:

- Summary workload information for Resource Areas and District Office operational functions.
- Access to Resource Areas' land characteristics and survey data.
- Tools for monitoring District workload.
- Tools for drafting and design work, to create plots of planimetric and natural resources on the land and design for small projects such as forest road design.
- Tools for resource analysis, such as KGS and drainage analysis.
- Administrative systems support.
- Automated case information and processing support.
- Access to automated information outside of BLM, such as Forest Service, EPA, and Soil Conservation Service information.

6.2.3 Resource Area Responsibilities

Resource Area functions are primarily operational. This includes land improvements, monitoring land resources, and working on land use cases. They also are responsible for developing Resource Management Plans which are based on maps and themes representing the land and its uses. Resource Areas have very little responsibility for administrative functions, but do need control over their monitoring and improvement projects. Large Resource Areas may perform some activities normally associated with Districts, but that is the exception.

No standard organizational structure exists for BLM's Resource Area Offices. Personnel often perform functions in several program areas, such as

a forester reporting on mineral sales in Klamath Falls, or one person taking care of wildlife and recreation. As one Resource Area person put it, "we're users, not specialists". System requirements at the Resource Area level are primarily associated with the Lands and Renewable Resources programs, as minerals and administration functions are generally performed at the District and State levels.

The Resource Areas perform all of the hands-on work of maintaining, improving, and monitoring the land. Data collection and Resource Management Plans are the responsibility of the Resource Areas. It is at this level that the ultimate decision is made on land uses, exchanges, and sales. Resource Areas provide all support work done on land cases, and make the final decision on the outcome of the requested land use. Requests for land uses are filed at the Resource Areas; they maintain recreational facilities, and wilderness areas. The Resource Area also performs studies such as the sedimentation studies in Powder River, Montana. Realty appraisals are a function of the Resource Area Offices, as are problem solving such as trespass and road use.

To fully support the functional requirements of the Resource Areas BLM needs a system that will provide:

- Storage for land characteristics and land survey information.
- Tools to input geographic data.
- Tools to manipulate and analyze land characteristics and boundary information, create maps, and overlay land usage or theme information.
- Access to case information.
- Tracking for work projects such as monitoring and improvements projects.
- Analysis and modeling for land management cost benefits.

Chapter 7

7. BUREAU-WIDE FUNCTIONAL REQUIREMENTS AND SYSTEM CHARACTERISTICS

This chapter covers cross-cutting activities that effect many or all parts of BLM. These Bureau-wide requirements provide opportunities to improve operations through economies of scale or increased coordination. These include activities -- such as ADP training -- performed or soon to be performed by all the organizations, as well as activities performed by many (but not necessarily all) organizations, such as technology coordination. Some are also discussed in individual functional requirements in chapters 3, 4, and 5, but their broad nature make them relevant here as well.

7.1 Distribution within the Organizational Structure

The opportunities for improved coordination or economies of scale are concentrated at the field offices of the BLM organization. The staff in the Washington Office and the Denver Service Center are centralized and relatively specialized. Few, if any, other staff in BLM perform the same functions as WO or DSC staff members. Coordination is easier than in the field offices and economies of scale for functions not already supported by administrative functions (i.e., personnel, procurement) are unlikely.

The State Offices provide some opportunity for economies of scale and improved coordination (simply because there are more of them), but these opportunities are limited and generally covered by administrative functions.

Implementing solutions to the cross-cutting requirements of the District Office and Resource Areas offer BLM the highest payback potential. At the District Offices and Resource Areas, the economies of scale and opportunities for improved coordination are much greater but also much more difficult. There are 55 District Offices and 143 Resource Areas. Whereas State Office functions are relatively distinct, identifying specific activities (i.e., dam maintenance) as District Office functions or Resource Area functions is difficult. Large District Offices perform some functions as if they were State Offices. Large Resource Areas perform some District Office functions. Small District Offices may have the State Office perform some functions for them such as procurement.

7.2 Summary of Functional Requirements, System Characteristics, and Key Observations

In this section are included those observations of particular interest to BLM due to their importance or the simple actions BLM could take to resolve them.

7.2.1 Cross-cutting Functional Requirements

BLM performs certain functions which are not attributable to a particular organizational unit. Instead, these functions tend to be cooperative efforts among many organizational units (such as producing the Public Land Statistics) or functions performed independantly by many organizations (such as ad hoc reporting). The following is a brief discussion of these functions in BLM.

- **BLM systems must support production of the Public Land Statistics.** The Public Land Statistics is a numerical aggregate describing all the different activities performed by BLM, from fire-fighting to putting horses and burros up for adoption. Each program in BLM contributes statistics to the Public Land Statistics publication. It is compiled by the DSC staff. Unfortunately, some data in the Public Lands Statistics is almost two years old by the time it is published and so unreliable that BLM's Public Affairs Office does not use it for the FLPMA report to Congress every year. Most of the users of the Public Land Statistics are outside of BLM. Since almost every activity is included in the book, a great deal of effort goes into compiling these statistics. A more timely, less labor intensive approach to developing this book and would integrate with the FLPMA report would be useful.

- **BLM management, Equal Employment Opportunity staff, and external liaison staff require ad hoc query support.** BLM management, Equal Employment Opportunity staff, and external liaison staff are often required to answer questions from the public or government officials. These require prompt access to reliable information, often aggregated

according to specific geographic parameters or other qualifiers, such as "How many producing oil wells have been drilled in Wyoming within the last ten years?". This type of request currently requires a series of telephone calls or letters and weeks of aggregating the information, if it can be obtained at all. Similar questions are also asked concerning BLM EEO compliance. The BLM must be able to illustrate how its personnel distribution corresponds to minority distributions and how BLM is acting to resolve discrepancies. BLM's EEO staff cannot currently answer these questions quickly and convincingly. These BLM groups need to be able to query land status and personnel data on an ad hoc basis. Although on-line access may not be necessary in most cases, prompt response is required.

- **Efforts to simplify map and plat production, reference, or update would have wide applicability.** Most BLM activities are based around legal land coordinates. Plats, supplemental plats, resource maps, and resource map overlays are used in almost every program and at every field office level for referencing or updating resource or legal land characteristics. Resource maps and map overlays are the basis for the Resource Management Plans that must be referenced before a decision can be made. Any decision on the land must be recorded on the plats or supplemental plats within ten days of the decision.

7.2.2 Required Characteristics

In addition to the cross-cutting requirements identified, AMS identified certain characteristics BLM information systems must have to satisfy BLM requirements. The following is a discussion of these characteristics.

- **The hardware and software technology used in the field offices must be compatible within State Offices and with the Denver Service Center.** AMS identified over 5 different terminal types in the States visited. The keyboards and functionality of each was sometimes very different. Some support certain software features, such as full screen editing, and others would not. To avoid confusion, some data

entry staff only learn techniques which work on all their terminals. For example, in the Miles City District Office in Montana data entry clerks only enter data line-by-line into ASPEN even though full screen editing is available on some of their terminals. Software often requires duplicate data entry because the systems do not share a data source. Colorado enters data for their local APPS system and for the APPS system at DSC. Duplicate data entry even occurs within the same system. Some of the travel vouchers are entered at DSC into both the FMS Travel Advance Subsystem and the FMS Perpetual Inventory Subsystem separately.

- **Where possible, data should be captured electronically at the BLM data generation points.** In each programmatic and administrative area, field staff complained data entry was too difficult, unreliable, or untimely. The common theme among these requirements is the need to capture data on some electronic medium as close to the data generation point as possible. This will provide for the entry of data only once, the validation of data as close to the source as possible to facilitate rapid error correction, and eliminate the reliance on the mail system to communicate raw data and error reports.

- **BLM information systems must be easy to use and provide adequate training to the field.** ADP training is already a Bureau-wide concern and will require increased emphasis as BLM's systems improve. General training is discussed among the Management Services functional requirements, but ADP training merits special emphasis because of its potential impact on future BLM systems. Systems modernization will only be effective if the field offices receive the training necessary to use it. Most of all BLM must make a conscious effort to raise "computer awareness" among the field staff. Some field staff appear to have only a vague concept of what a computer could do for them or what is needed to develop an ADP system.

Every level of the BLM organization mentioned ADP training as a concern. Lack of training has caused BLM's current limited ADP capabilities to be underutilized. Some staff mentioned they had unfortunately given up on using the computer for their needs because they could not get help and it was too difficult to learn on their own. To improve system utilization, BLM should pursue three goals: raising field staff computer awareness, improving its systems' ease of use to reduce the training required, and developing a training strategy to reach the Resource Areas with both training and reference materials (such as user manuals).

- **BLM must emphasize support activities which have not received much emphasis in BLM before such as data administration, software search, and end-user support.** ADP is relatively new to the States and has changed the nature of ADP within BLM. ADP in BLM previously consisted of almost exclusively centralized processing. The Honeywell Level 6 minicomputers were installed in the State Offices initially as data concentrators to feed centralized processing on the Honeywell DPS-8/70 mainframe computer in DSC. Now that more processing is occurring in the field, some support activities required by distributed processing (such as strong data administration, software searching, and end-user support) will require more emphasis in BLM to maintain system coordination and control.

A data administration function could help the State and District Offices use consistent formats for similar applications so that communications between systems is easier and avoid problems such as duplicate data entry for APPS and FMS. Also, since more data is being generated and used, data administration can also help clean out old data or systems to make way for the current data or systems and improve disk and tape usage.

A software search function could be established to assist users looking for software support. This function would identify existing systems in BLM or in other Bureaus that the user could use or adapt for his

purpose. This would minimize the number of systems supported for a particular program and reduce the likelihood of multiple systems being developed in parallel to accomplish essentially the same task.

An end user support function would provide a hotline to answer users questions, supply manuals on system operations, form users groups to discuss improvements to existing software, and support information centers where standard microcomputer software tools such as spreadsheets would be available. This function would encourage users to look within BLM for guidance rather than striking out on their own.

7.3 Index of Bureau-wide Functional Requirements and System Characteristics

Immediately following is the index for Appendix D which contains the BLM-wide functional requirements and system characteristics we have identified. These descriptions include a description of the function as it is performed now, the current performance and sizing requirements, and finally the details on supporting systems.

These functional requirement and system characteristic descriptions are based on interviews with BLM staff and BLM internal documentation. These listings do not necessarily imply that these function should be automated. Rather they are an attempt to accurately describe the BLM-wide functions and their level of automated support.

Figure 7-1

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Appendix A

Appendix A

Functional Requirements for Energy and Mineral Resources

This applendix contains the specifications for each of the 22 functional requirements identified for BLM's Energy and Mineral Resources programs. Each function is described in a standard format, covering general information, a description of the function and the associated ADP requirements, performance and sizing factors, and the existing system(s) (if any) that support the function. The functions are grouped by program -- fluid mineral leasing, fluid mineral operations, coal leasing, and so on.

An index to the functional requirements is presented in the chart on the next page.

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<<< BLM Functional Requirement >>>

Competitive Oil and Gas Leasing

Part 1: General Information

Associated Program: Fluid Minerals Leasing

User Organizations: BLM State Offices and District Offices

Owner/Operator/Maintainer: Division of Fluid Mineral Leasing (WO-620)

Existing Automated System: None

Part 2: Description of Overall Program, Requirement, and Current Procedures

BLM awards leases on a competitive basis for Federal lands of known potential for oil and gas production -- that is, lands in Known Geological Structures. Land is determined to be "leasable" during BLM's land use planning process. Specific sections of land are then nominated for leasing by BLM itself or (on rare occasions) by a private sector organization. BLM also operates a competitive leasing program for geothermal resources that lie within Known Geothermal Resources Areas: geothermal leases follow the same process as oil and gas leases.

The first step in the competitive leasing process is to subdivide the land to be leased into individual parcels. Parcels must no larger than 640 acres and are established on the basis of subsurface geology (e.g., known or potential oil and gas fields), surface terrain, man-made boundaries (e.g., state lines), access roads, and other factors. BLM also conducts an environmental analysis for each parcel and prepares an evaluation of the value of the land based on the available geological evidence.

After the land to be leased has been divided into parcels, it goes through the pre-lease adjudication process. Adjudication includes: assigning each parcel a unique identification number; preparing a legal land description for each parcel, together with any stipulations; and issuing a sale notice listing the parcels available for bid. (Adjudication is a set of activities performed for all BLM energy and minerals leases in much the same way; adjudication is described in more detail later in this chapter.) Adjudication activities are performed at the State Office, although resource evaluation work is often done at the District level.

After bids have been received, they are evaluated to identify the bid of greatest value to the government. This bid is compared to BLM's evaluation of the economic value of the parcel and to bids for comparable tracts. If the bid is too low, it is rejected and the land is not leased. If the bid is high enough, it is accepted. In fiscal 1984, the competitive sale of oil and gas leases generated over $49 million in bonus bids accepted.

The highest bid is then subjected to additional adjudication steps (e.g., verifying that applicable bonding requirements have been satisfied, ensuring that the award of the lease would not violate acreage limitations on the bidder). The lease is then awarded. Oil and gas leases issued through competitive bidding have a term of five years, and can be extended if a well producing paying quantities of gas and oil is developed.

BLM needs a system to help it manage the competitive leasing process. The system should:

- Identify land open to competitive leasing (i.e., Federal land in Known Geological Structures not subject to special prohibitions).
- Track the status of land that has been actually nominated for competitive leasing by BLM or the public.
- Support the process by which land is subdivided into parcels by providing interactive graphics displays of surface and subsurface natural and man-made features, and allowing BLM personnel to define and modify parcels quickly, easily, and flexibly.
- Generate legal land descriptions automatically based on parcel boundaries developed using interactive graphics.
- Automatically identify the highest bid for each parcel and provide information about other bids for the same parcel, BLM's evaluation of the parcel's value, and bids received for comparable parcels to support of a lease award decision.
- Generate management reports and support on-line inquiries on the past results and current status of the competitive leasing process, including the number of tracts and amount of land offered and leased, the number of bids received, the amount of bid revenue generated, and the amount of time required to award a lease.

Part 3: Sizing and Performance Requirements

Performance requirements:

- **Operating schedule/deadlines:** Current BLM policy is to offer all land within a KGS for competitive lease every year. Each State Office decides when it will offer its parcels for sale and how the parcels will be grouped together. Bids are due about four weeks

after BLM publishes the notice of the sale; the high bidder has an 30 days from the time of the sale to provide the remainder of the bonus bid, with leases generally awarded about two weeks after that.

- **Security/privacy:** Normal business standards for security and privacy are required for most program information. For each parcel to be leased, it is especially important that BLM's estimated fair market value and the amounts bid by potential lessors be kept highly confidential.

- **Response time:** The system should allow BLM to meet its internal deadlines for awarding competitive leases. User support capabilities and reporting features should have a response time adequate to allow for increased personnel productivity and effective management decision-making (e.g., 5 second response time on simple transactions, same day turnaround on complex ad hoc inquiries and report requests).

- **Interfaces:**

  -- A lease award should be reflected in BLM's data bases, systems, and procedures for supporting monitoring, inspection, and enforcement functions.

  -- BLM's competitive leasing activities are closely linked with the adjudication process.

  -- The results of the land use planning process (i.e., Resource Management Plans) define what Federal land is available for leasing.

  -- Land can be competitively leased only if it is in a KGS; thus the nomination and "parcelization" processes should be linked to a description of KGSs.

- **Reliability:** Normal business standards for reliability are satisfactory.

Major programmatic inputs:

- **Parcels offered for competitive leasing:**

  -- BLM is able to exercise some control over when parcels are offered for competitive leasing. Accordingly, the number of parcels offered for competitive leasing is unlikely to exceed significantly BLM's capacity for soliciting, adjudicating, and awarding such leases.

Major programatic outputs:

- **Competitive leases awarded:**

  -- In fiscal 1984, BLM awarded 879 oil and gas leases and 14

geothermal leases through competitive leasing.

Use of existing system:

- **Number of users:** The number of individuals involved in a competitive leasing sale varies from State Office to State Office depending on local factors and the size of the scale. In addition to adjudication personnel, a team of as many as 12-15 geologists, engineers, and economists may be involved in defining parcels, estimating fair market values, and other analyses.

- **Amount of use:** A system to support competitive leasing would be used intensively by BLM personnel in the period leading up to and during the sale. For the most part, however, the system would not be used on a full time basis by any one individual.

- **Distribution by office:** Use of the system by office is proportional to the number of competitive leases issued.

- **Refer to Figure A-1 for sizing information.**

Growth factors:

- BLM expects that the number of parcels offered for competitive leasing will remain fairly stable over the next several years. Because BLM ultimately determines which parcels will be offered for competitve leasing, BLM has some control over the amount of work performed in this function.

- Congress may enact legislation requiring BLM to increase the proportion of leases awarded through competitive bidding. If this happens, the number of leases awarded through this function will increase; however, the number of leases awarded through non-competitive (i.e., over-the-counter) leasing procedures should fall proportionally. A policy change of this type would also have an impact on other BLM programs -- for example, BLM might no longer need to identify KGSs as a step in determining whether land should be leased on a competitive or over-the-counter basis.

- The Minerals Management Service (MMS) is now responsible for all leasing of off-shore lands. If this responsibility were to be assigned to BLM, the number of competitive leases would increase.

- If BLM moves to a more "free market" position in determining the economic value of lease parcels, it will do less evaluation of the geological value of land offered for competitive lease.

- According to BLM's Denver Service Center, the SIMO program could be phased out. If so, a new system would be probably be required.

Figure A-1. **The New Mexico and Wyoming State Offices account for most competitive oil and gas bases.**

State Office	Leases Issued	Acreage Leased
Alaska	10	227,021
California	28	3,447
Colorado	32	6,768
Eastern States	47	8,650
Montana	30	2,739
New Mexico	412	65,049
Utah	92	37,809
Wyoming	228	42,781
TOTAL	879	394,264

Source: Public Land Statistics 1984

Note: No competitive oil and gas leases were awarded in BLM's Arizona, Idaho, or Oregon State Offices. All data for fiscal 1984.

Part 4: Existing System

Name:	Manual Competitive Oil and Gas Leasing System
Location:	BLM State and District Offices
Hardware:	N/A
Software:	N/A
Telecommunications:	N/A
Contact:	N/A

<<< BLM Functional Requirement >>>

Over-the-Counter Oil and Gas Leasing

Part 1: General Information

Associated Program: Fluid Minerals Leasing

User Organizations: BLM State Offices and Regional Offices

Owner/Operator/Maintainer: Division of Fluid Mineral Leasing (WO-620)

Existing Automated System: None

Part 2: Description of Overall Program, Requirement, and Current Procedures

BLM leases Federal lands that are not in Known Geological Structures and that have never been leased before through a process known as "over-the-counter" leasing. In over-the-counter leasing, organizations and individuals in the private sector determine the land that they wish to lease and submit an application for the desired parcel. Lease applicants typically identify parcels through research in the public roons at BLM State Offices. Non-competitive leases are 640-10,240 acres in size.

In over-the-counter leasing, the applicant -- not BLM -- defines the parcel to be leased. When an over-the-counter oil and gas (or geothermal) lease application is received, it is first reviewed for completeness and validated; BLM will consult with the agency responsible for managing the surface (e.g., the Forest Service, the Park Service) if different from BLM. The application is then "clear-listed" to ensure that the land in question is not in an existing KGS or in an area that should be evaluated as a potential KGS. Lease applications that cannot be successfully clear-listed are rejected (if the land is in an existing KGS) or held in suspense (if the land is to be evaluated as potentially being in a KGS). BLM also performs an environmental analysis to guage the potential impact of the lease.

Once the lease application has been clear-listed, it is adjudicated using many of the same basic procedures as adjudication for competitive leases. For over-the-counter applications, however, there is no economic evaluation of the parcel or comparison of alternative bids. As long as no problems arise during adjudication, the lease is awarded to the applicant. BLM attempts to award all over-the-counter leases within 90 days of receipt. Over-the-counter

leases are valid for 10 years, and can be extended for leases containing a well producing paying quantities of oil and gas. As in competitive oil and gas leasing, adjudication tasks are performed in BLM's State Offices and resource work (e.g., clear-listing) is usually done at the District Office.

BLM needs a system to help it manage the over-the-counter leasing process. The system should:

- o Identify land open to over-the-counter leasing, with access to BLM and other Federal agencies, as well as to interested private sector individuals and organizations.

- o Generate legal land descriptions automatically based on parcel definitions submitted by the public.

- o Track the status of over-the-counter lease applications (e.g., in environmental review, awaiting final adjudication).

- o Generate management reports and support on-line inquiries on the past results and current status of the over-the-counter leasing process, including the number of applications received and in inventory at each stage of the process and the amount of time required to award a lease.

Part 3: Sizing and Performance Requirements

Performance requirements:

- o **Operating schedule/deadlines:** The pattern of operations in the over-the-counter oil and gas leasing program is determined by lease applicants. BLM's goal is to award leases within 90 days of receiving an application. There are no seasonal variations in the receipt of over-the-counter lease applications.

- o **Security/privacy:** Normal business standards for security and privacy are satisfactory.

- o **Response time:** Response time should be sufficient to allow BLM to meet its programmatic goals (e.g., lease award within 90 days of application receipt). In addition, the system should support convenient on-line use in order to provide for increased personnel productivity and effective management decision-making.

- o **Interfaces:**

  -- A lease award should be reflected in BLM's data bases, systems, and procedures for supporting monitoring, inspection, and enforcement functions.

  -- BLM's over-the-counter leasing activities are closely linked with the adjudication process.

-- The results of the land use planning process (i.e., Resource Management Plans) define what Federal land is available for leasing.

-- Land can be leased through the overr-the-counter program only if it is not in a KGS; thus the "clear-listing" process should be linked to a description of KGSs.

o **Reliability:** Normal business standards for reliability are satisfactory.

Major programmatic inputs:

o **Number of over-the-counter lease applications received:**

-- Almost all over-the-counter lease applications are approved. Applicants are typically sophisticated energy exploration and production firms (e.g., EXXON, Amoco) who have verified land status and properly completed the application form.

Major programatic outputs:

o **Number of over-the-counter leases awarded:**

-- In fiscal 1984, BLM awarded 2,419 oil and gas leases and 247 geothermal leases in response to over-the-counter applications.

Use of existing system:

o **Number of users:** The amount of time required to process a single over-the-counter lease application is significantly less than the effort required for a competitive sale. However, because the number of applications is much larger the total number of system users is about the same.

o **Amount of use:** The system would be used on a fairly steady basis throughout the year.

o **Distribution by office:** Use of the system is proportional to the number of over-the-counter leases issued.

o **Refer to Figure A-2 for sizing information.**

Growth factors:

o BLM personnel anticipate that the number of over-the-counter lease applications received over the next several years will remain fairly stable.

Figure A-2. **BLM's Alaska, Eastern States, and Montana State Offices represent about two-thirds of the over-the-counter oil and gas leases** issued and acreage leased.

State Office	Leases Issued	Acreage Leased
Alaska	743	1,208,744
Arizona	45	91,205
California	92	199,996
Colorado	63	187,839
Eastern States	565	598,343
Idaho	98	163,344
Montana	310	1,145,027
Nevada	117	407,178
New Mexico	179	268,699
Oregon	128	271,902
Utah	33	17,810
Wyoming	46	97,639
TOTAL	2,419	4,657,726

Source: Public Land Statistics 1984

Note: All data for fiscal 1984.

- If Congress requires BLM to award a larger proportion of (or even all) oil and gas leases on a competitive basis, the number of over-the-counter lease applications will fall. The number of competitive lease applications will probably rise proportionally.

Part 4: Existing System

Name: Manual Over-the-Counter Leasing System

Location: BLM State Offices and District Offices

Hardware: N/A

Software: N/A

Telecommunications: N/A

Contact: N/A

<<< BLM Functional Requirement >>>

Simultaneous Oil and Gas Leasing

Part 1: General Information

Associated Program: Fluid Minerals Leasing

User Organizations: BLM State Offices

Owner/Operator/Maintainer: Division of Fluid Mineral Leasing (WO-620); Wyoming State Office

Existing Automated System: SIMO Program

Part 2: Description of Overall Program, Requirement, and Current Procedures

BLM's Simultaneous Oil and Gas Leasing Program (SOG) applies to Federal land that is not in Known Geological Structures and that has been leased before. This land may or may not have been explored during the previous lease, but a producing oil and gas well was never drilled. The previous lease may have ended in expiration, termination, cancellation, relinquishment, or for other reasons. BLM's Wyoming State Office acts as the central processing organization for the SOG program.

As in competitive leasing, the parcels to be leased through the SOG program are defined by BLM based on a variety of factors. Each parcel is 40-10,240 acres in size. SOG leases are issued for a 10 year period, and can be renewed if they contain wells producing paying quantities of oil and gas.

Each BLM State Office performs initial adjudication activities (e.g., identifying leasable parcels, preparing legal land descriptions) and publishes a list of the parcels under its juridistiction that are being offered through the SOG program. Like over-the-counter parcels, SOG tracts must be "clear-listed" to ensure that they are not within a KGS. In addition, BLM performs an analysis to assess the potential impact of leasing on the environment.

Individuals or organizations that are interested in one or more specific parcels complete an application form, designating the parcels that they wish to bid on. Applicants send their forms to BLM's Wyoming State Office in Cheyenne. All fees are fixed in advance (i.e., a $75 filing fee and a fixed

rental charge per acre), and are the same for all bidders.

The Wyoming State Office receives SOG program lease applications and optically scans them at WSO to identify the parcels of interest for each applicant. This data is then transmitted electronically to DSC for processing by the SIMO automated information system, which runs on the DPS 8/70 at the Denver Service Center. If only one applicant has bid on a parcel, that applicant is awarded the lease. If several applicants have bid on a parcel, the computer system randomly selects one applicant to be awarded the lease.

After a single applicant has been selected for each parcel, the remainder of the adjudication process is completed by the State Office with responsibility for the land in question.

BLM needs a system to help it manage the SOG leasing process. The system should:

- Identify land open to oil and gas leasing through the SOG program.
- Support the process by which land is subdivided into parcels by providing interactive graphics displays of surface and subsurface natural and man-made features, and allowing BLM personnel to define parcels quickly, easily, and flexibly.
- Track the status of land that has been actually designated for SOG leasing by BLM (e.g., in pre-lease adjudication, awaiting bids from applicants, in post-bid adjudication).
- Generate legal land descriptions automatically based on parcel definitions produced through interactive graphics.
- Automatically identify the successful bid for each parcel and provide information about other bids for the same parcel.
- Generate management reports and support on-line inquiries on the past results and current status of the SOG leasing process, including the number of tracts and amount of land leased, the number of tracts in inventory at each stage of the SOG leasing process, the number of bids received for each parcel, and the amount of time required to award leases.

Part 3: Sizing and Performance Requirements

Performance requirements:

- **Operating schedule/deadlines:** The SOG leasing program is executed on a bi-monthly basis. BLM State Offices publish lists of SOG tracts at the beginning of February, April, June, August, October, and December. Applications are accepted for 15 business days after the lists are published. The winning bid is selected sometime during the following month.

- **Security/privacy:** Special precautions for security and privacy are required. The names of individuals bidding on particular parcels and the procedure by which one bidder is selected must be carefully protected. Anyone knowing the names of individuals bidding on specific parcels or (especially) the identity of the winning bidder could obtain significant financial benefits in certain circumstances. BLM now uses special encryption techniques to protect SOG data transmitted from the Wyoming State Office in Cheyenne to the Denver Service Center.

- **Response time:** The SIMO information system must support the bi-monthly operating schedule of the SOG program. In addition, user support capabilities (e.g., tract delineation) and reporting features should have a response time adequate to allow for increased personnel productivity and management decision-making. For the most part, however, turn-around time of as long as several days would probably be adequate to support SOG operations. Requests for data to be submitted to outside organizations and BLM management are received on at least a weekly basis, with responses due as soon as possible (i.e., as little as 10-15 minutes and never longer than the end of the day).

- **Interfaces:**

  -- A SOG lease award should be reflected in BLM's data bases, systems, and procedures for oil and gas lease monitoring, inspection, and enforcement.

  -- BLM's SOG program leasing activities are closely linked with the adjudication process. SOG and adjudication need to share all available information about each parcel.

  -- The results of the land use planning process (i.e., Resource Management Plans) define what Federal land is available for SOG leasing.

  -- Land can be leased through the SOG program only if it is not in a KGS; thus the "clear-listing" process should be linked to a description of KGSs.

- **Reliability:** Normal business standards for reliability are satisfactory.

Major programmatic inputs:

- **Parcels offered through the SOG program:**

  -- During the summer of 1985, BLM offered about 2,000 parcels in every bi-monthly SOG program cycle.

- **Bids received for parcels offered through the SOG program:**

-- BLM receives an average of about 50 bids for each SOG parcel for which bids are received. On average, about two-thirds of the parcels are bid on.

Major programatic outputs:

- **Leases awarded through the SOG program:**

  -- In fiscal 1984, BLM awarded 4,295 leases through the SIMO program.

Use of existing system:

- **Number of users:** Each simultaneous oil and gas parcel requires more effort than an over-the-counter tract (because BLM, not the applicant, is responsible for defining the tract) but less than a competitive tract (because no economic evaluation is needed).

- **Amount of use:** Use of the system would be heavy during specific periods in the leasing cycle.

- **Distribution by office:** Use of the system across State Offices would be roughly proportional to the number of SOG leases issued, except for Wyoming, which would have additional needs and utilization requirements for processing all SOG applications.

- **Refer to Figure A-3 for sizing information.**

Growth factors:

- BLM expects the number of leases awarded through the SIMO Program to remain fairly stable over the next several years under existing policies and program objectives.

- If Congress requires BLM to award a larger proportion of oil and gas leases competitively, the number of applications received through the SIMO Program may fall.

Part 4: Existing System

Name: SIMO Program

Location: Denver Service Center

Hardware: Honeywell DPS 8/70 Mainframe

Figure A-3. **BLM's Colorado, Montana, and Wyoming State Offices generate the greatest amount of SOG activity.**

State Office	Leases Issued	Acreage Leased
Alaska	---	---
Arizona	33	59,664
California	97	79,025
Colorado	806	1,378,810
Eastern States	184	96,993
Idaho	31	46,558
Montana	1,000	1,199,989
Nevada	166	446,038
New Mexico	423	546,332
Oregon	48	102,597
Utah	379	583,924
Wyoming	1,128	917,013
TOTAL	4,295	5,456,943

Source: Public Land Statistics 1984

Note: All data for fiscal 1984.

Software:	COBOL
Telecommunications:	Encrypted Link between Wyoming State Office (Cheyenne) and the Denver Service Center
Contact:	Division of Computer Applications, D-220

<<< BLM Functional Requirement >>>

Maintain Oil and Gas Lease Files

Part 1: General Information

Associated Program: Fluid Minerals Monitoring, Inspection, and Enforcement

User Organizations: BLM District Offices

Owner/Operator/Maintainer: Division of Fluid Mineral Operations (WO-630)

Existing Automated System: None

Part 2: Description of Overall Program, Requirement, and Current Procedures

BLM maintains a manual file of relevant documents for each oil and gas lease, unit, and/or participating area. These files are maintained mostly in BLM's District Offices.

BLM's oil and gas files are stored in manual filing cabinets, sorted by lease. Each lease file contains relevant documents for that lease. Documents are submitted by the operator and are internally generated by BLM. Examples of relevant documents include: a copy of the original lease itself; Forms 3160-6 (Monthly Reports of Operations); unitization agreements; folders containing well-specific data for each well on the lease (e.g., well logs); assignments; inspection and enforcement results; Applications for Permits to Drill (APDs); and Abandonment Plans. Once a lease expires, the lease file is retained at the responsible District Office for two years and then forwarded to the appropriate Federal Records Center for permanent storage.

BLM offices also maintain maps and charts used in oil and gas operations. For example, "pin maps" displaying the location of all oil and gas wells on or near Federal land are used to identify potential drainage cases and Known Geological Structure (KGS) evaluations. District Offices may also keep maps of KGS boundaries for areas within their responsibility. If resources are sufficient, BLM will also review leases to verify compliance with oil and gas diligence requirements.

To support this function, BLM needs an information system that will:

- Store critical information about every lease, well, unit, and

participating area within the oil and gas program.

- Support BLM personnel in reviewing and approving or rejecting various documents submitted by lessees (e.g., Applications for Permits to Drill, Abandonment Plans).

- Produce management reports and support on-line inquiries against oil and gas lease data, including the number of leases, wells, and other entities (producing, non-producing, by location, by lessee), the amount of oil and gas produced, and so on.

Part 3: Sizing and Performance Requirements

Performance requirements:

- **Operating schedule/deadlines:** Each document type contained in BLM's oil and gas lease files is submitted on a specific basis (e.g., Form 3160-6, Monthly Report of Operations, is submitted every month). Accordingly, there are a variety of periodic cycles in the lease maintenance processing cycle. Overall, however, the document submission cycles and the timing of the receipt of different documents within a specific cycle tend to even out the peak processing periods.

- **Security/privacy:** Normal business standards for security and privacy are satisfactory for leases on Federal lands. BLM must take special precautions to ensure protection of data about leases on Indian lands.

- **Response time:** BLM's oil and gas lease files need to be up-to-date and accurate. All documents should be filed within a few days of receipt. Data entry, management reports, and on-line inquiries should be easy and convenient to use (e.g., average response time of 5 seconds) in order to meet users' needs.

- **Interfaces:** BLM's oil and gas lease files are the key repository of information about fluid mineral activities. Accordingly, these files must be available to most other oil and gas functions; similarly, these files should be updated to reflect information collected as a result of other oil and gas functions (e.g., inpsection and enforcement, drainage).

- **Reliability:** Normal business standards for reliability are satisfactory.

Major programmatic inputs:

- BLM receives a variety of forms and notifications for each existing oil and gas lease (currently about 120,000-130,000 active leases, of which about 22,500 have direct or allocated production) on a regular

basis:

-- **Form 3160-6: Monthly Report of Operations.** Submitted monthly by the operator for each lease, unit, and/or participating area. Specifies production by well by product (oil, gas, water), number of days of production, disposition of production, etc. Usually submitted to the responsible BLM District Office.

-- **Application for Permit to Drill (APD).** Submitted on an as-needed basis by the operator before drilling on any BLM lease. BLM must process all APDs within 30 days. BLM received over 4,000 APDs in fiscal 1985.

-- **Sundry Form.** Submitted on an as-needed basis by the operator to describe miscellaneous operational changes to the lease.

-- **Abandonment Plans.** Submitted once for each lease by the lessee or operator so that BLM has a baseline against which to verify that wells are properly plugged and that drilling sites are reclaimed to protect surface and subsurface resources.

The lease file also contains forms and documents that are generally submitted only once for each lease -- the lease itself, unitization agreements, and so on.

o BLM must maintain oil and gas lease files for every active oil and gas lease. As each lease application is adjudicated, a lease file is established. There are about 10,000-15,000 new oil and gas leases adjudicated each year.

Major programatic outputs:

o **Lease files maintained:**

-- BLM maintains lease files for about 120,000-130,000 active leases. Of this total, about 22,500 have direct or allocated production.

Use of existing system:

o **Number of users:** The oil and gas lease files are used by hundreds of BLM's fluid mineral operations personnel at the State, District, and Resource Area Offices.

o **Amount of use:** The lease files are used on a daily basis. For any one lease or well, however, the files will be used mostly for adding new information received (an average of about 10-15 times per year for a producing lease).

o **Distribution by office:** Use of the system by office is proportional to the number of active leases within the responsibility of each BLM

office.

- **Refer to Figure A-4 for sizing information.**

Growth factors:

- BLM expects the number of oil and gas leases to remain fairly stable in the next several years. The number of new leases adjudicated each year should remain about the same or decline slightly if energy prices fall.
- BLM does not anticipate that additional reporting requirements will be imposed for each oil and gas lease. Accordingly, the number of documents per lease should remain about the same.

Part 4: Existing System

Name:	Manual Oil and Gas Lease Files
Location:	BLM District Offices
Hardware:	N/A
Software:	N/A
Telecommunications:	N/A
Contact:	N/A

Figure A-4. **The Wyoming and New Mexico State Offices maintain the most oil and gas lease files.**

State Office	Active Oil and Gas Leases
Alaska	1,228
Arizona	1,882
California	2,691
Colorado	9,404
Eastern States	5,483
Idaho	2,323
Montana	14,963
Nevada	6,839
New Mexico	19,669
Oregon	2,787
Utah	14,472
Wyoming	33,488
TOTAL	115,229

Source: Public Land Statistics 1984

Note: All data as of January 23, 1985.

<<< BLM Functional Requirement >>>

Drainage Detection Program

Part 1: General Information

Associated Program: Fluid Minerals Monitoring, Inspection, and Enforcement

User Organizations: State Offices and District Offices (depending on the pattern of oil and gas drainage analysis responsibilities and authorities in particular State Offices)

Owner/Operator/Maintainer: Division of Fluid Minerals Operations (WO-630)

Existing Automated System: Petroleum Information Corporation (PI) Well Location and Log Data Base and Gas and Energy Management (GEM-1). Analytical Software Package

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Part 2: Description of Overall Program, Requirement, and Current Procedures

Drainage occurs when a producing well on state or fee land near Federal land causes oil and/or gas to flow from Federal land to non-Federal land. When this happens, the Federal government is in effect losing oil and gas without compensation. BLM therefore acts to prevent drainage from occuring and to respond effectively to actual drainage situations. Drainage can only be formally established if the affected Federal land has been categorized as a Known Geological Structure (KGS).

Drainage investigations are initiated by knowledge of a producing oil or gas well on state or private land near Federal land. These wells are first screened to evaluate their potential for drainage. If the affected Federal land has no nearby producing oil and/or gas wells, BLM will create a drainage investigation case; in some instances, this may first require that BLM investigate and define a KGS covering the affected Federal land. (BLM is now conducting a pilot study using the Geographical Information System to screen wells for drainage.)

Once a potential drainage situation has been identified, BLM performs three separate steps:

- **Data Collection.** BLM first collects information about the area under

consideration. This information includes "pin maps" maintained at BLM offices showing wells on or near Federal land, well logs from wells in the area obtained from private sources or state governments, and data from Petroleum Information Corporation (PI). PI operates an on-line data base of production and well log information covering several million wells in the U.S.

- **Data Analysis.** After collecting relevant data, BLM geologists and engineers determine whether drainage is actually occuring. For example, a fault may separate the potentially draining well from Federal lands, thereby preventing Federal oil and gas from flowing to the producing well. In performing this analysis, BLM personnel can down-load PI information into an IBM PC/XT microcomputer for analysis by a PI software package known as GEM-1. Overall, however, drainage evaluation requires the application of experience, expertise, and judgment. In addition, PI data sometimes contains errors or is not specific enough to support a drainage determination; for example, the PI system may use regional averages for certain soil conditions instead of values that have been calculated on a parcel-specific basis.

- **Response.** If BLM determines that drainage is occuring, it formally notifies the operator, who may then supply geological information in an attempt to refute BLM's claim. BLM has two main options for dealing with actual drainage situations:

  -- If the affected Federal land has been leased, BLM can require the lessee to drill and produce from a well immediately opposite the well causing the drainage. This prevents the flow of oil and gas from Federal land.

  -- If the affected Federal land has not been leased, BLM can seek compensatory royalties from the operator of the well causing drainage. For example, the operator and BLM could agree on the basis of geological evidence that one-third of the oil and/or gas produced from the draining well is coming from Federal land; the operator would then pay royalties on that volume of product. BLM can obtain compensatory royalties for oil and gas produced in the past as well as in the future. If the operator refuses to pay compensatory royalties, BLM can file suit to recover lost revenues.

Drainage evaluations are performed by geologists and engineers in BLM's District Offices. In addition, the Division of Geology and Mineral Resources in the Washington Office (WO-670) provides expert technical assistance to State and District Offices in situations involving especially complex or sensitive evaluations. The Washington Office also becomes involved in cases where the operator files suit in an attempt to force BLM to reverse its drainage determination.

BLM needs an information system to support its personnel in identifying and resolving potential and actual drainage situations. The system should:

- Store a record of the location and boundaries of existing KGSs and

oil and gas wells.

- o Automatically screen wells to identify potential drainage situations to be reviewed by BLM personnel.
- o Plot well locations, lease boundaries, contours, isopacks, and other relevant geological and other features at different depths in order to help BLM personnel make drainage determinations.
- o Provide access to well log data.
- o Track the status of drainage cases, for screening, drainage determination, and appropriate reponse.
- o Produce management reports and on-line ad hoc queries describing the number of drainage cases in inventory, under analysis, and completed, together with information about the speed with which the drainage case inventory is being processed and the resources required.

Part 3: Sizing and Performance Requirements

Performance requirements:

- o **Operating schedule/deadlines:** Drainage cases are identified and evaluated by BLM as they occur based on their relative priority. There is no fixed schedule for drainage cases, although they should be completed as soon as possible and typically require six to nine months (assuming that a positive determination is made). Drainage cases are not subject to significant peak processing cycles on a regular basis.
- o **Security/privacy:** Normal business standards for security and privacy are satisfactory in most drainage cases. In situations where BLM is likely to be or has been sued in a drainage dispute, additional security precautions may be necessary.
- o **Response time:** BLM needs to resolve drainage cases as quickly as possible in order to prevent loss of revenues. Ideally, a drainage evaluation support system would provide immediate, on-line access to all relevant data and analytical capabilities -- a highly responsive system is desirable because it allows BLM to perform drainage evaluations more quickly, increases staff productivity, and minimizes the amount of lost revenues. In practice, immediate turn-around is not an absolute requirement; for example, the ability to process complex transactions (e.g., recalling and plotting well log data for all wells in a given area) could require as long as several days and still be valuable.
- o **Interfaces:**
  - -- Drainage evaluation makes use of much of the same information

and analytical capabilities as KGS determinations.

-- Drainage evaluations require access to information contained in BLM's oil and gas lease files. In addition, lease files should be updated to reflect the results of any relevant drainage determinations.

-- Geological information collected during drainage evalations should be entered into ALMRS and/or GIS.

o **Reliability:** Normal business standards for reliability are satisfactory.

Major programmatic inputs:

o The major programmatic input into this function is the number of drainage cases to be evaluated. In addition, the number of drainage cases evaluated depends in part on the level of attention, resources, and political pressure devoted to the drainage issue.

Major programatic outputs:

o The major programmatic output of this function is the number of drainage cases processed. A completed drainage case can result in the drilling of a well to prevent additional drainage, an agreement by the operator to provide BLM with compensatory royalties, or a determination that drainage was in fact not occurring.

Use of existing system:

o **Number of users:** A typical BLM District Office has between one and seven personnel conducting drainage evalutions.

o **Amount of use:** Drainage evaluations are long, complex analyses, typically requiring an average of approximately three weeks of professional effort. (The amount of time required is highly variable, based on the complexity of the specific case.) An automated drainage analysis system would be used for only a fraction of the total time devoted to a specific drainage determination.

o **Distribution by office:** Drainage activity is heaviest in the District Offices under the Wyoming and New Mexico State Offices.

o **Refer to Figure A-5 for sizing information.**

Growth factors:

o The number of drainage cases is dependent on the overall level of oil and gas drilling activity. Accordingly, the number of cases should remain fairly stable or even decline in the next several years.

Figure A-5. **BLM's Montana, New Mexico, and Wyoming State Offices have the most active drainage programs.**

State Office	Number of Potentially Offending Wells Identified (fiscal 1985)
California	234
Colorado	238
Eastern States	12
Montana	2,082
New Mexico	1,633
Utah	6
Wyoming	894
TOTAL	5,099

Source: Division of Fluid Mineral Operations, Quarterly Report (11/25/85)

Note: Alaska, Arizona, Idaho, and Nevada reported no potentially offending wells identified in fiscal 1985.

- Many BLM personnel believe that the number of drainage cases is limited by BLM's ability to identify potential drainage situations. Accordingly, the number of cases may increase dramatically if BLM is successful in developing automated well screening capabilities.

Part 4: Existing System

Name:	Petroleum Information Corporation (PI) Well Location and Log Data Base and GEM-1 Analytical Software Package
Location:	Well Location and Log Data Base -- PI, Denver, Colorado GEM-1 Analytical Software Package -- BLM District Offices (10 DOs in total)
Hardware:	Well Location and Log Data Base -- IBM mainframe GEM-1 Analytical Software Package -- IBM PC/XT microcomputers
Software:	Proprietary to PI
Telecommunications:	BLM Network
Contact:	John Bebout, WO-690
Note:	BLM uses the PI data base through a contract held by USGS. BLM and USGS split the cost of the contract each year; BLM's share is now approximately $500,000 annually.

<<< BLM Functional Requirement >>>

Identify and Delineate Known Geological Structures (KGSs)

Part 1: General Information

Associated Program: Fluid Minerals Monitoring, Inspection, and Enforcement

User Organizations: State Offices and District Offices (depending on the delegation of KGS analysis responsibilities and authorities in particular State Offices); Division of Geology and Mineral Resources (WO-690)

Owner/Operator/Maintainer: Division of Fluid Mineral Operations (WO-630)

Existing Automated System: Petroleum Information Corporation (PI) Well Location and Log Data Base and GEM-1 Analytical Software

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Part 2: Description of Overall Program, Requirement, and Current Procedures

A Known Geological Structure (KGS) is a formation containing oil and/or gas that has been proven by a producing well. (A parcel of land cannot be classified as a KGS on the basis of indirect geological evidence alone.) In leasing land for oil and gas exploration and production, BLM is required to use different procedures depending on whether or not the land includes a Known Geological Structure -- all KGS land must be leased competitively.

The need to perform a KGS evaluation is most often triggered by the knowledge that a new producing well has been drilled on or near Federal land not already categorized as a KGS. In this situation, BLM geologists and engineers must determine whether a new KGS must be defined or an existing KGS extended as a result of the new well. In addition, every over-the-counter and simultaneous oil and gas lease parcel must be "clear-listed" by determining whether it covers land that is in an existing KGS or land that should be evaluated as a potential KGS. Most often, KGS analyses are performed at the District Office level within BLM, although in some states (e.g., Colorado) the work may be done at the State Office.

There are two primary steps in the KGS determination process:

- **Data Collection.** BLM first collects information about the area under consideration. This information includes "pin maps" maintained at BLM offices showing wells on or near Federal land, well logs from wells in the area obtained from private sources or state governments, and data from Petroleum Information Corporation (PI). PI operates an on-line data base of production and well log information covering several million wells in the U.S.

- **Data Analysis.** After collecting relevant data, BLM geologists and engineers determine whether new KGSs should be defined (and, if so, what their boundaries should be) and what changes, if any, should be made to existing KGS boundaries. In performing this analysis, BLM personnel can down-load PI information into an IBM PC/XT microcomputer for analysis by a PI software package known as GEM. Overall, however, the definition and delineation of known geological structures requires the application of experience, expertise, and judgment.

KGS determinations are performed by geologists and engineers in BLM's State Offices and District Offices, depending on the extent to which responsibilities have been delegated. Typically, State Offices perform KGS analyses if their lands have relatively little oil and gas activity; in states where there is a significant amount of oil and gas activity, KGS determinations are most often performed at the District Office level. In addition, the Division of Geology and Mineral Resources in the Washington Office (WO-690) provides expert technical assistance to State and District Offices in situations involving especially complex or sensitive evaluations.

BLM needs an information system to support its personnel in identifying and delineating KGSs. The system should:

- Store a record of the location and boundaries of existing KGSs and oil and gas wells.

- Plot well locations, lease boundaries, contours, isopacks, and other relevant geological and other features at different depths.

- Provide access to well log data.

- Allow BLM geologists and engineers to define and evaluate alternative KGS boundaries quickly, flexibly, and easily.

- Track the status of KGS cases.

- Produce management reports and support on-line ad hoc queries describing the number of KGSs in inventory, under analysis, and completed, together with information about the speed with which the KGS inventory is being processed and the resources required.

Part 3: Sizing and Performance Requirements

Performance requirements:

- **Operating schedule/deadlines:** KGS cases are identified and evaluated by BLM as they occur based on their relative priority. There is no fixed schedule for KGS cases, although they should be completed as soon as possible. KGS cases are not subject to significant peak processing cycles on a regular basis. KGS evaluation can take up to 12 months or more to complete. KGSs are identified and evaluated at an even pace throughout the year; there are no major seasonal variations in KGS work.

- **Security/privacy:** Normal business standards for reliabiity are satisfactory.

- **Response time:** BLM needs to perform KGS evaluations as quickly as possible in order to facilitate oil and gas lease application processing. Ideally, a KGS evaluation support system would provide immediate, on-line access to all relevant data and analytical capabilities -- a highly responsive system is desirable because it allows BLM to perform KGS determinations more quickly and increases staff productivity. In practice, immediate turn-around is not an absolute requirement; for example, the ability to process complex transactions (e.g., recalling and plotting well log data for all wells in a given area) could require as long as several days and still be valuable.

- **Interfaces:**

  -- KGS definitions and boundaries should be linked into ALMRS and/or GIS.

  -- Well location and well log data need to obtained from outside sources such as state governments and private services like PI.

- **Reliability:** Normal business standards for reliability are satisfactory.

Major programmatic inputs:

- The most important programmatic input to this function is the number of KGS evaluations to be performed based on new producing oil and gas wells on or near Federal land.

- A second key programmatic input is the number of over-the-counter and simultaneous oil and gas lease applications submitted to BLM each year. Each OTC application must be "clear-listed", a process which sometimes requires a KGS evaluation.

- BLM now has about 3,200 KGSs in place and appropriately 900 KGS evaluations awaiting to be performed.

Major programatic outputs:

- The major programmatic output of this function is a completed KGS determination. A completed determination may result the addition of new KGSs, the partitioning of existing KGSs into several new KGSs, changes to the boundaries of existing KGSs, or no changes.

Use of existing system:

- **Number of users:** Most BLM District Offices have between one and five personnel performing KGS evaluations.

- **Amount of use:** Each KGS evaluation takes a significant amount of professional resources and requires the application of judgment, experience, and expertise. An automated KGS support capability would be used for only a fraction of the total time involved. For budgeting purposes, BLM plans for about one man-month of effort per KGS, although there is wide variation around that average in practice.

- **Distribution by office:** The distribution of use of the system is generally proportional to the number of KGS evaluations processed. The Wyoming and New Mexico State Offices are the largest in terms of KGS cases.

Growth factors:

- KGSs are important to BLM because of their role in determining the appropriate leasing procedures to be used for a particular parcel of land. If Congress requires BLM to lease all land competitively, the need to identify and delineate KGSs will be dramatically reduced and perhaps eliminated entirely.

- BLM has found that, in some areas, many KGS determinations also lead to the identification of additional KGS evaluations to be performed. In this situation, KGS work may "generate its own demand".

Part 4: Existing System

Name: Petroleum Information Corporation (PI) Well Location and Log Data Base and GEM-1 Analytical Software Package

Location: Well Location and Log Data Base -- PI, Denver, Colorado

GEM-1 Analytical Software Package -- BLM District Offices (10 DOs in total)

Hardware:	Well Location and Log Data Base -- IBM mainframe GEM-1 Analytical Software Package -- IBM PC/XT microcomputers
Software:	Proprietary to PI
Telecommunications:	BLM Network
Contact:	John Bebout, WO-690
Note:	BLM uses the PI data base through a contract held by USGS. BLM and USGS split the cost of the contract each year; the cost to BLM is approximately $500,000 annually.

<<< BLM Functional Requirement >>>

Process Unit and Other Agreement Applications

Part 1: General Information

Associated Program: Fluid Minerals Monitoring, Inspection, and Enforcement

User Organizations: State Offices and District Offices (depending on the pattern of delegation of oil and gas responsibilities and authorities in particular State Offices)

Owner/Operator/Maintainer: Division of Fluid Mineral Operations (WO-630)

Existing Automated System: None

Part 2: Description of Overall Program, Requirement, and Current Procedures

Oil and gas lease operators must obtain BLM's approval in order to include leased land in any of a variety of pooling agreements commonly found in the energy industry. For example, many forms of tertiary oil and gas recovery (e.g., using water injection) may be economical only on a large scale, thereby requiring the participation of a large number of lessors and land-owners. Similarly, exploration for oil and gas can typically be conducted more efficiently over large tracts of land rather within the boundaries of a single Federal lease.

The types of agreements include:

- **Unit Agreements ...** used to combine land into larger tracts for economic exploration and production
- **Communitization Agreements ...** used to combine land into larger tracts into which a single well can be drilled
- **Oil and Gas Storage Agreements ...** used to obtain permission to store oil or natural gas in geological structures on Federal land for use in periods of high consumption.

Unitization agreements are usually approved at the State Office level,

although some or all of the analytical work may have been performed at the District Office. Communitization agreements are typically approved at the District Office.

BLM reviews agreement applications to ensure that they are valid (e.g., the application contains a formal agreement from all participating members). BLM also analyzes the land descriptions and geological data to verify that the proposed unit is appropriate. Overall, BLM works to guarantee that its interests in the land are properly incorporated into the final agreement.

To improve the efficiency and effectiveness of its processing of unit and other agreements, BLM needs an information system that:

- Stores summary information about each lease, unit, communitization agreement, and other relevant entities.
- Describes how those leases are linked by existing unit, communitization, and other agreements.
- Allows BLM to quickly identify and list data about leases proposed to be linked by specific agreements, and to display the proposed agreements on a map.
- Supports BLM personnel responsible for evaluating all types of unit and other agreement applications (e.g., environmental analysis, resevoir engineering, economic impacts).
- Tracks the status and disposition of agreeement case processing, including the number and age of cases in inventory, the number of cases completed and their dispositions, the amount of time and number of resources required to process cases, and so on.

Part 3: Sizing and Performance Requirements

Performance requirements:

- **Operating schedule/deadlines:** Unit and other applications are received at a fairly even rate throughout the year. There are no major peaks or major deadlines in the work cycle. BLM's goal is to process all agreement applications within 90 days of receipt.
- **Security/privacy:** Normal business standards for privacy and security are satisfactory.
- **Response time:** Unit and other applications do not need to be processed on a real-time basis. As a result, the system should provide for easy, convenient use to the extent justified by operational benefits and improved productivity. There are no stringent, mandatory response time requirements associated with processing unit and other agreement applications.

- **Interfaces:**

  -- Units and other agreements approved should be reflected in the oil and gas lease files maintained in BLM's State Offices and District Offices.

  -- Units and other agreements approved need to be included into the MS-1 system in order to ensure proper inspection planning and execution.

- **Reliability:** Normal business standards for reliability are satisfactory.

Major programmatic inputs:

- **Number of unit and other agreement applications received:**

  -- In fiscal 1985, BLM received about 130-150 unit agreement applications and 400-500 other agreement applications.

Major programatic outputs:

  -- In fiscal 1985, BLM approved 138 unit agreements and 440 other agreements.

- **Number of unit and other agreement applications processed:**

Use of existing system:

- **Number of users:** BLM's largest energy and minerals offices -- the Wyoming and New Mexico State Offices -- have special sections of five to six professionals who are dedicated to unit agreements. Most other states have no more than three personnel performing this function.

- **Amount of use:** An average unit agreement requires about one week of professional effort to process, although there is significant variation from case to case.

- **Distribution by office:** Use of the system would be proportional to the number of agreements processed.

- **Refer to Figure A-6 for sizing information.**

Growth factors:

- BLM expects the number of unit and other agreement applications received and processed to remain stable for the next several years. If anything, the number of cases may fall if energy prices continue to decline.

Figure A-6. **The New Mexico and Wyoming State Offices process the most unit and other agreements.**

State Office	Unit Agreements Approved in Fiscal 1985	Other Agreements Approved in Fiscal 1985
Alaska	---	---
Arizona	---	---
California	4	3
Colorado	6	22
Eastern States	1	25
Idaho	1	---
Montana	16	86
New Mexico	13	212
Nevada	17	---
Oregon	---	---
Utah	9	26
Wyoming	71	66
	138	440

Source: Division of Fluid Mineral Operations, Quarterly Report (11/25/85)

Part 4: Existing System

Name:	Manual Unit and Other Agreement Application Processing System
Location:	BLM State Offices and District Offices
Hardware:	N/A
Software:	N/A
Telecommunications:	N/A
Contact:	N/A

<<<BLM Functional Requirement>>>

Oil and Gas Inspection and Enforcement

Part 1: General Information

Associated Program: Fluid Minerals Monitoring, Inspection, and Enforcement

User Organizations: State Offices, District Offices, or Resource Area Offices (depending on delegation of oil and gas inspection and enforcement responsibilities and authorities in particular State Offices)

Owner/Operator/Maintainer: Office of Inspection and Enforcement (WO-504)

Existing Automated System: MS-1 (Oil and Gas Lease Inventory and Inspection System, OGLIIS)

Part 2: Description of Overall Program, Requirement, and Current Procedures

BLM inspects oil and gas wells drilled on Federal lands in order to ensure compliance with applicable laws, lease stipulations, exploration and production plans, and regulations. Inspections address legal and regulatory compliance, safety, pollution and environmental concerns, drainage, and other factors. BLM takes appropriate enforcement action to correct incidents of non-compliance.

Inspection and enforcement activities are performed in BLM's State Offices, District Offices, and Resource Area Offices depending on the exact delegation of responsibility and authority in particular State Offices. Typically, State Offices with heavy oil and gas activity delegate inspection to lower levels. There are a total of approximately 30 BLM field offices with oil and gas inspection and enforcement responsibilities. Each BLM inspector performs about 150-200 inspections annually.

BLM's oil and gas inspection objectives are defined in the annual inspection plan. Each year, each responsible BLM office classifies its "inspectable entities" -- leases, units, and communitization agreements --

into three priority categories (high, medium, and low) based on safety, size, technical considerations, and other factors. BLM conducts detailed and nondetailed production and drilling inspections during the year, with the objective of reaching the targets defined in the plan. Detailed inspections cover a full range of inspection items for every facility and well in the inspectable entity; non-detailed inspections cover some subset of the inspection items, facilities, or wells. BLM also conducts non-production inspections.

In conducting a specific inspection, responsible BLM personnel:

- Identify the entity to be inspected (lease by operator, communitization agreement, or unit by participating area) and the inspection intensity (detailed or nondetailed) based on the annual inspection plan.

- Use MS-1 and manual lease records to determine the past history and current status of the well (e.g., assignments, bonds, communitization and unit agreements, well tests, applications for permits to drill, sundry notices, monthly reports of operations).

- Conduct the inspection by examining the physical conditions at the site, reviewing the lessee's records, taking samples for analysis of pollutant concentrations, and so on.

- Record the inspection results on the MS-1 production inspection form and enter the new data into the system. (Nonproduction inspections are documented separately using manual procedures.)

After the inspection is completed, BLM uses MS-1 to track any incidents of noncompliance to ensure that appropriate corrective action is taken by the operator. BLM takes enforcement action (e.g., termination of lease) as necessary in response to continuing or repeated noncompliance.

For the most part, descriptive inspection data is collected and used by District and Resource Area Office personnel, depending on the pattern of delegated authority. BLM managers at higher levels -- the State Office and Washington Office -- are concerned primarily with summary statistics and management reports; personnel at these levels would become involved in the details of a specific inspection only in special cases.

To fully support its oil and gas inspection and enforcement program, BLM needs a system that will:

- Maintain information about the past history and current status of each lease, unit, and participating area, including information on all past inspections of all kinds.

- Help select which entities should be inspected based on inspection priorities, past inspection results, geography, and so on.

- Print reports about a particular lease, unit, or communitization agreement for use by BLM personnel in conducting inspections.

- Allow BLM managers to monitor the status of their oil and gas inspection and enforcement programs.

- Track the resolution of incidents of noncompliance, producing "tickler" lists where necessary to indicate the need for BLM action.

- Generate summary reports and support on-line inquiries at Resource Area Offices, District Offices, State Offices, and the Washington Office.

Part 3: Sizing and Performance Requirements

Performance requirements:

- **Operating schedule/deadlines:** Inspection and enforcement activities occur fairly evenly throughout the year. In some areas (e.g., Montana State Office) the number of inspections conducted will decline somewhat in the winter due to weather conditions; the decrease is not large on a BLM-wide basis, however. There will be peak demands for regular and ad hoc reporting after the end of each quarter and during budget preparation and inspection planning periods (typically during each summer).

- **Security/privacy:** BLM's inspection schedules and enforcement plans are confidential and should be protected from unauthorized access by outside organizations. In addition, information about Indian lands is proprietary and cannot be released without special permission.

- **Response time:** Most inspection and enforcement activities can be predicted at least several days in advance. As a result, the system should provide for easy, convenient use (e.g., same day turn-around of report requests, on-line editing of input data). There are no stringent, mandatory response time requirements associated with oil and gas inpsection and enforcement. Response time should be adequate to support on-line data entry and query activity in order to best meet users' needs (e.g., average response time of 5 seconds for simple transactions).

- **Interfaces:**

  -- Legal description and land characterization data should be available to inspectors.

  -- Oil and gas adjudication activities result in the award of new leases to be considered for inspection.

  -- Inspectors need access to basic oil and gas lease file data; conversely, lease files should be updated to reflect the results of inspection and enforcement activities.

- **Reliability:** Normal business standards for reliability are

satisfactory.

Major programmatic inputs:

- **Oil and gas inspections:**

  -- BLM conducts approximately 10,000 oil and gas inspections each year, or approximately 830 each month.

  -- There are no major variations in the number of inspections completed in each month. There is a slight decrease during the winter due to weather conditions, especially in northern areas.

  -- Inspections are completed by BLM employees, who currently document the results on turn-around documents for entry into the MS-1 automated system.

  -- The MS-1 production inspection input form is one page long. The form lists about 30 inspection items (e.g., well signs, production storage, water disposal methods) and allows the inspector to check each item as in compliance, not in compliance, or not applicable. For some items, additional data is entered (e.g., date approved, method of production measurement).

  -- The attached chart identifies the number of inspections conducted in 1985 by BLM field office.

Major programmatic outputs:

- **Oil and gas inspections:**

  -- MS-1 reports for each lease, unit, or communitization agreement are used as the basis for the inspection. For each inspection, the report is used for preparation and as a turn-around document for data entry.

  -- The number of inspections completed each year is about 20,000.

- **Incidents of non-compliance (INC's):**

  -- Each year, BLM identifies thousands of incidents of non-compliance during its oil and gas inspections. For each INC, BLM ensures that appropriate corrective action is taken. If the facility is not brought into compliance, BLM takes action against the lease, unit, or CA.

Use of existing system (MS-1):

- **Number of users:** BLM now employs about 110-120 people in its oil and gas inspection and enforcement program. Production inspection input

forms are actually entered by one or two clerical personnel at each of the approximately 30 responsible State Offices and District Offices.

- **Amount of use:** Use of MS-1 is heavy. Some responsible offices perform data entry on a full time basis during normal business hours. BLM believes that if the current limitations of the system were corrected, MS-1 would be heavily used to support planning, control, and evaluation. For example, MS-1 now can store data about the most recent inspection only and does not cover non-production inspections.

- **Refer to Figure A-7 for sizing information.**

- **Distribution by office:** The distribution of MS-1 use by office corresponds to the number of inspections performed.

Growth factors:

- BLM expects no major changes in the oil and gas inspection and enforcement program in the next three to five years. However, approved staffing for fluid leasable minerals inspection and enforcement is about 150 -- approximately 30-40% above existing levels. As BLM hires new inspectors to fill these positions, the number of inspections completed each year will increase.

- BLM believes that improvements to MS-1 will increase the number of on-line queries and ad hoc reports requested by BLM managers.

- BLM is increasing the use of cooperative agreements with state governments and Indian tribes to perform oil and gas inspections. Although this will reduce the number of inspections performed by BLM personnel, it is likely to complicate the system requirements for MS-1.

Part 4: Existing System

Name:	MS-1 (Oil and Gas Lease Inventory and Inspection System, OGLIIS)
Location:	USGS, Denver Federal Center, Denver, CO
Hardware:	USGS Honeywell Multics, Televideo 950 terminals
Software:	ASPEN/2
Telecommunications:	Tymnet

Figure A-7. **BLM's New Mexico State Office accounts for almost half of the oil and gas inspection and enforcement activity.**

State Office	Inspectable Entities	Production Inspections	Non-production Inspections	Incidences of Non-compliance
Alaska	22	97	27	8
Arizona	5	---	10	---
California	712	947	364	108
Colorado	1,612	821	109	437
Eastern States	823	665	66	430
Montana	2,123	2,208	417	1,184
Nevada	105	196	233	10
New Mexico	8,686	10,323	1,077	3,631
Utah	1,359	2,131	516	681
Wyoming	5,371	3,814	823	1,854
TOTAL	20,820	21,202	3,642	8,343

Source: Inspection and Enforcement Statistics Report for Fiscal 1985, BLM Office of Inspection and Enforcement.

Note: Oil and gas activity in the Oregon and Idaho State Offices is minimal.

Contact: Joe Chesser, WO-504

<<< BLM Functional Requirement >>>

Regional Activity Planning for Coal Leasing

Part 1: General Information

Associated Program: Coal Leasing

User Organizations: BLM State Offices

Owner/Operator/Maintainer: Division of Solid Mineral Leasing (WO-650)

Existing Automated System: Solid Leasable Minerals System

Part 2: Description of Overall Program, Requirement, and Current Procedures

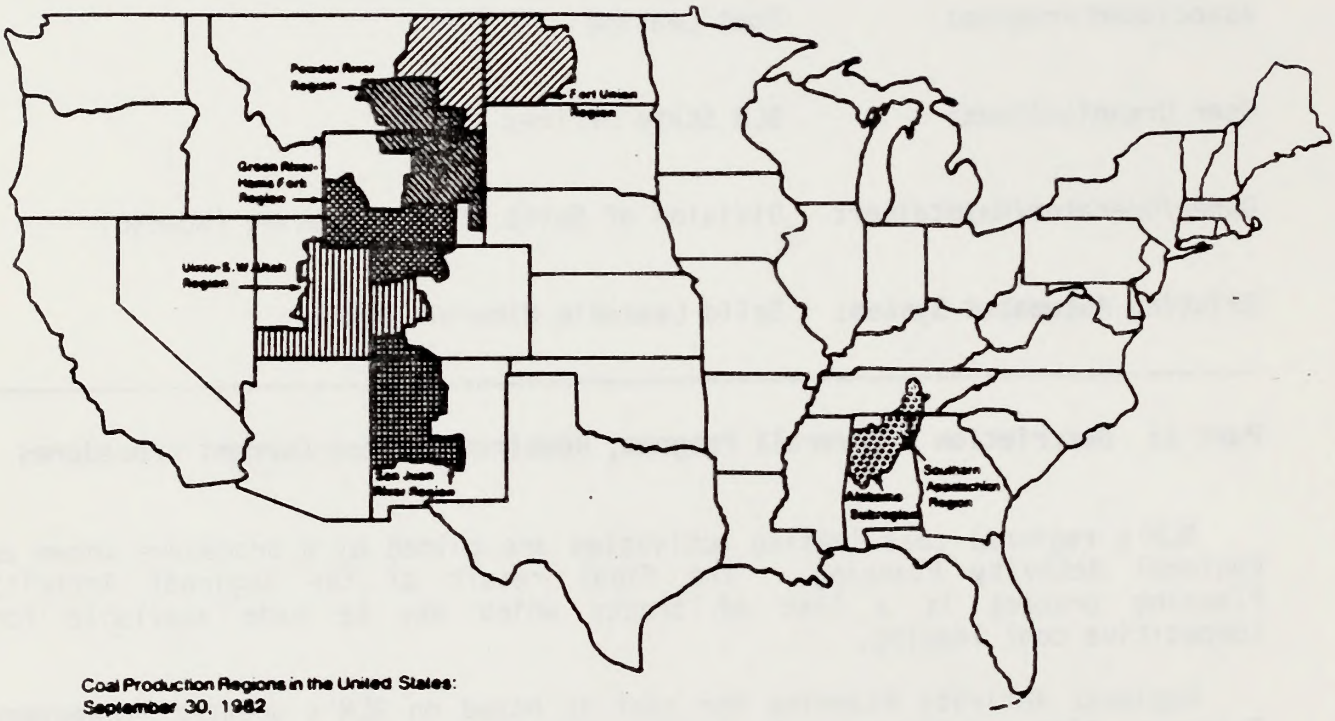
BLM's regional coal leasing activities are guided by a procedure known as Regional Activity Planning. The final result of the Regional Activity Planning process is a list of tracts which may be made available for competitive coal leasing.

Regional Activity Planning for coal is based on BLM's updated Management Framework Plan and Resources Management Plans for the affeced areas. The RMP addresses the development potential of coal in the area, "unsuitability criteria" that might inhibit coal development (e.g., coal lying under Wilderness Areas), the role of coal leasing in a multiple-use situation, and the impact of coal development on surface owners. The land use plans ultimaely identify certain lands as eligible for further consideration for coal leasing.

BLM has designated six Federal Coal Production Regions in which Regional Activity Planning is conducted (see Figure A-8). Regional Activity Planning typically requires 2 1/2 to 3 years and is guided by a Regional Coal Team consisting of personnel from the responsible BLM State Office and a representative from the Governor's office of each affected State. It may take up to 6 years from the time that BLM initiates work on a land use plan in a coal lease sale can be held and a lease issued.

The Regional Coal Team begins Regional Activity Planning by determining if there is any demand for coal leasing in the region. If so, the Regional Coal Team guides the tract delineation, process and the evaluation of impacts of leasing various combinations of tracts.

Figure A-8. There are six Federal Coal Production Regions.



Coal Production Regions in the United States:
September 30, 1982

- The Regional Coal Team first calls for a public expression of interest in coal leasing. Interested coal mining firms typically respond with submission of expressions of leasing interest (i.e., identification of specific areas in which they are interested in leasing).

- Next, potential lease tracts are delineated based on company expressions of leasing interest and other considerations. A site-specific analysis is then prepared to guage the impact of leasing each tract.

- The tracts are then assigned to one of three priority categories--high, medium, and low--based on their attractiveness to potential lessees, environmental factors, and so on.

- The Regional Coal Team selects various combinations of tracts for study in a regional coal EIS. One of these combinations must fall within a leasing level established by the Secretary.

- The RCT then develops formal recommendations as to which tracts should be offered for lease, and presents its proposal to the Secretary of the Interior. The recommendations include coal leases to be set aside for small businesses and non-profit utilities, as well as normal, fully-competitive leases.

- The Secretary of the Interior makes the final decision as to which tracts will be offered for leasing, and when.

To support this process, BLM needs a system that will:

- Track the status of the Regional Activity Planning process, allowing for easy modification to reflect the completion, re-scheduling, and addition of events.

- Provide for easy access by BLM personnel and state government representatives.

- Allow BLM personnel to define, change, and evaluate alternative coal leasing tracts quickly, easily, and flexibly.

- Generate reports and support on-line inquiries concerning the past history and current status of the Regional Activity Planning process.

Part 3: Sizing and Performance Requirements

Performance requirements:

- **Operating schedule/deadlines:** Regional Activity Planning takes about 2 1/2 to 3 years from beginning to end. Within this process, there a significant variation in the amount of work done within a particluar region; overall, however, BLM is not subject to rigid deadlines or

major peaks in processing requirements. Regional Activity Planning in different Coal Production Regions is staggered, so all regions are not performing the same functtion at the same time.

- **Security/privacy:** Normal business standards for security and privacy are satisfactory.

- **Response time:** There are no special requirements for immediate response time. Because Regional Activity Planning is a long-term process, response time should be set based on improvements in the efficiency and effectiveness of BLM operations rather than on pre-determined standards.

- **Interfaces:**

  -- Regional Activity Planning is based on the results of BLM's Resource Management Planning process. Relevant RMP data (e.g., maps and descriptions of areas eligible for coal leasing) should be available to support Regional Activity Planning.

  -- The final results of Regional Activity Planning are tracts to be offered for leasing. The tract definitions should be provided to the competitive coal leasing function for further processing.

- **Reliability:** Normal business standards for reliability are satisfactory.

Major programmatic inputs:

- **Regional Activity Plans:**

  -- Regional Coal Activity Planning will be performed for one or two regions at any one time. In a cycle of basing, activity planning for six regions will involve not more than two regions at any one time with repeated rounds involving all regions.

Major programatic outputs:

- **Regional Activity Plans:**

  -- Regional Coal Activity Planning will be performed for one or two regions at any one time. In a cycle of basing, activity planning for six regions will involve not more than two regions at any one time with repeated rounds involving all regions.

Use of existing system:

- **Number of users:** The number of BLM personnel participating in Regional Activity Planning for any one Coal Production Region is between 50 and 100.

- **Amount of use:** Regional Activity Planning occurs over several years. Use of the system will be highly variable, depending on the specific tasks to be performed. It is unlikely that any BLM personnel would use the system on a full time basis.

- **Distribution by office:** The system would be used by those State Offices with Coal Production Regions: Eastern States, New Mexico, Colorado, Utah, Wyoming, and Montana.

Growth factors:

- The nature and magnitude of the Regional Activity Planning process is expected to remain stable for the next several years. As time passes, however, BLM may be forced by outside constituencies (e.g., environmental groups, coal producers) to justify its results more formally and rigorously.

Part 4: Existing System

Name: Solid Leasable Minerals System (SLMS)

Location: Denver Service Center

Hardware: Honeywell DPS 8/70 Mainframe

Software: ASPEN/2

Telecommunications: BLM Network

Contact: Allen Agnew (WO-660)

<<< BLM Functional Requirement >>>

Coal Leasing

Part 1: General Information

Associated Program: Coal Leasing

User Organizations: BLM State Offices

Owner/Operator/Maintainer: Division of Solid Mineral Leasing (WO-650)

Existing Automated System: Solid Leasable Minerals System (SLMS)

Part 2: Description of Overall Program, Requirement, and Current Procedures

BLM awards competitive coal leases through two separate procedures:

- **Leasing of coal tracts defined in Regional Activity Planning.** Coal tracts defined in Regional Activity Planning are leased on a competitive basis. Leases are offered in groups as determined by the Secretary of the Interior at the conclusion of Regional Activity for each designated Federal Coal Production Region. For each group, BLM appraises the fair market value of every tract, performs pre-bid adjudication activities (e.g., legal land descriptions), and publishes a notice and description of the tracts to be offered. (Potential bidders are responsible for obtaining the consent of any qualified surface owners). Interested parties submit sealed bids together with a statement of their qualifications. The bids are opened and the high bidder is announced as the apparent winner. (Lessees make three types of payment to BLM on coal leases: rental payments assessed as a given number of dollars per acre per year; royalties based on a fixed percentage of the value of the coal produced; and bonus bids paid either in lump sum or on a deferred basis. Since rental and royalty rates are set by BLM, the size of the bonus bid determines the highest bidder.) The apparent high bidder is then then subjected to several reviews (e.g., bonding verification, anti-trust review) and the amount of the bid is compared to BLM's appraisal of the tract's value. If these reviews do not identify any problems, the lease is awarded.

- **Lease by application.** In addition to bidding on coal tracts

identified through Regional Activity Planning, interested parties can apply for coal leases under two sets of circumstances:

-- **Land not within a Federal Coal Production Region.** Regional Activity Planning is performed only for designated Federal Coal Production Regions. Interested parties sometimes identify land outside of designated Federal Coal Production Regions that they would like to lease. In this case, the applicant defines the tract that he is interested in leasing. If approved, BLM will offer the tract on a competitive basis and award the lease to the highest bidder, although the applicant is almost always the winner. There are no restrictions on the amount of coal that can be awarded in this type of lease.

-- **Land within a Coal Production Region subject to by-pass or needed to maintain production.** Interested parties can apply to lease tracts within Federal Coal Production Regions if the land in question will be by-passed by an existing mining operation, thereby making it extremely unlikely that the land could ever be leased in the future. Similarly, applicants can ask BLM to offer tracts for lease in order to avoid ending or severely limiting production at an existing mine. In either case, BLM will evaluate the application and may offer the tract for lease on a competitive basis. The amount of coal that can be covered by a lease of this type is limited to eight years of reserves at the existing mine.

BLM issued a total of six coal leases in fiscal 1984; between 1978 and 1984 a total of 111 leases were awarded, or about 16 annually. The revenue derived from coal sales can be substantial -- the Paonia D Seam Tract in Colorado, covering 4,999 acres, was sold for over $9.5 million in 1984.

To support the coal leasing process, BLM needs an information system that will:

- Support BLM's geologists and mining engineers in evaluating the economic value of every coal parcel to be offered for lease.
- Track the status of every parcel.
- Support BLM personnel in evaluating lease applications for tracts not identified in Regional Activity Planning.
- Generate summary reports and support on-line inquiry on the past history and current status of the coal leasing program, including information on the number of tracts offered, the number of bids received, the disposition of each parcel (e.g., awarded, in final adjudication, no bids received), their location, and the amounts bid.

Part 3: Sizing and Performance Requirements

Performance requirements:

- **Operating schedule/deadlines:** Coal leasing is a long term process. A coal lease awarded in response to an application takes up to six months to a year. Once Regional Activity Planning is complete, competitive leases can be awarded in as little as two months. States typically group competitive leases together to simplify the competitive leasing process.

- **Security/privacy:** Normal business standards for security and privacy are satisfactory for most aspects of the coal leasing program. Information about BLM's economic evaluation of the value of each tract is highly confidential, however, and must be carefully protected against unauthorized access.

- **Response time:** The system should support BLM's operating schedule and timeliness goals. The system should provide for easy, convenient use (e.g., same day turn-around of report requests, 5 second average response time for data entry). There are no stringent, mandatory response time requirements associated with coal leasing, however; therefore, response time should be evaluated in terms of improvements in efficiency and effectiveness rather than absolute standards.

- **Interfaces:**

  -- The tracts and leasing schedule defined in Regional Activity Planning are the foundation of the coal leasing process. Relevant information should be automatically made available for use in announcing, evaluating, and awarding coal leases.

  -- Information about coal leases awarded should be forwarded to BLM's solid mineral operations activities for appropriate monitoring, inspection, and enforcement tasks.

- **Reliability:** Normal business standards for reliability are satisfactory.

Major programmatic inputs:

- **Land identified in Regional Activity Planning and offered for lease:**

  -- Coal leasing activity in fiscal 1984 was suspended pending program review.

  -- In fiscal 1984, only one lease was issued through regional leasing. The tract had been specifically exempted from the moratorium on regional (nonemergency) leasing activity enacted by Congress.

- **Lease applications received:**

  -- In fiscal 1984, three leases were issued under emergency conditions or for land outside Federal Coal Producing Regions.

In addition, one lease was awarded as part of a lease exchange for land in the Bisti Wilderness Area.

Major programatic outputs:

- **Leases awarded:**

  -- From 1978 to 1984, BLM awarded an average of 16 coal leases annually. In 1984, only six coal leases were awarded due to the suspension of most leasing activity pending the results of the Linowes Commission's report.

Use of existing system:

- **Number of users:** Competitive coal leases require relatively few people, since all necessary economic, geological, and environmental analysis is performed in Regional Activity Planning. Lease by application usually requires the involvement of dozens of BLM personnel.

- **Amount of use:** The system would be used fairly intensively for economic and geological analysis when coal leasing was in progress. The number of tracts offered for lease, however, is not large.

- **Distribution by office:** Use of the system would be greatest in those State Offices with Coal Production Regions: Eastern States, New Mexico, Colorado, Utah, Wyoming, and New Mexico.

- **Refer to Figure A-9 for sizing information.**

Growth factors:

- BLM expects the number of coal tracts offered and leases awarded to remain fairly stable based on the activity of the past two years. If anything, there has been a trend towards offering fewer and smaller tracts for lease for the last three to five years. Coal leasing activity peaked in 1982-1983.

- If energy prices rise, there could be a rapid increase in the demand for coal leasing.

Part 4: Existing System

Name: Solid Leasable Minerals System (SLMS)

Location: Denver Service Center

Figure A-9. **Between 1978 and 1984, BLM issued an average of 16 coal bases annually.**

Fiscal Year	Number of Leases Issued	Average Leased
1978	2	574
1979	13	9,062
1980	14	10,376
1981	15	33,398
1982	40	84,283
1983	21	28,609
1984	6	6,595
	111	172,897

In 1984, the six leases were distributed as follows: Colorado -- 3
New Mexico -- 1
North Dakota -- 1
Utah -- 1.

Source: Federal Coal Management Report, Fiscal Year 1984.

Hardware:	Honeywell DPS 8/70 Mainframe
Software:	ASPEN/2
Telecommunications:	BLM Network
Contact:	Allen Agnew, WO-660

<<< BLM Functional Requirement >>>

Preference Right Leases for Non-Energy Minerals

Part 1: General Information

Associated Program:	Non-energy Minerals, Oil Shale, and Tar Sands Leasing
User Organizations:	BLM State Offices and District Offices
Owner/Operator/Maintainer:	Division of Solid Mineral Leasing (WO-650)
Existing Automated System:	Solid Leasable Minerals System (SLMS)

Part 2: Description of Overall Program, Requirement, and Current Procedures

Federal legislation classifies non-energy minerals three groups: leasables, locatables, and salables. In addition to oil, gas, and coal, leasables include phosphate, sodium, potassium, sulphur, alphalt, and gilsonite. Most non-energy leasable minerals are leased through a procedure known as Preference Right Lease Applications. The exact terms and conditions of leasing and production vary by material and location (see Figure A-10).

The Preference Right Leasing Application process begins when an individual or organization applies for a prospecting permit. BLM reviews the application and performs an environmental impact assessment. For example, BLM may define permit stipulations to protect certain environmental resources on the land in question. Permits are granted for a two year period, and can be extended for an additional two to four years for some minerals.

If the permit holder is successful in finding a deposit of leasable minerals, he may submit a Preference Right Lease Application (PRLA) to BLM. The PRLA describes the results of the prospecting and how the mineral would be produced (e.g., mine location and description, transportation). If BLM determines that the mineral can be economically produced -- without excessive environmental impact -- a Preference Right Lease will be awarded to the applicant on a non-competitive basis. Overall, only about 10% of all prospecting permits result in a Preference Right Lease Application, and only 10% of all PRLAs result in the award of a lease. Leases are usually readjusted or renewed every 20 years to reflect changing circumstances. PRLA leases vary in size from material to material (e.g., e.g., 2,560 acres for

Figure A-10. Leasing requirements for solid minerals are highly variable.

BUREAU OF LAND MANAGEMENT 12/84

SOLID MINERAL LEASING

(MINERALS LEASED UNDER 43 CFR GROUP 3500)

SPECIAL PROVISIONS	PHOSPHATE	SODIUM	POTASSIUM (POTASH)	SULPHUR (LOUISIANA & NEW MEXICO AND ACQUIRED LANDS)	GILSONITE (INCLUDING ALL VEIN-TYPE SOLID HYDROCARBONS)	ASPHALT (IN OKLAHOMA)	*HARDROCK MINERALS
PROSPECTING PERMIT EXTENSIONS	NOT TO EXCEED 8 YRS. 30 USC 211 (e) (43 CFR 3611.3-1(a)(2))	NO EXTENSIONS 30 USC 261 (43 CFR 3611.3-1(a)(3))	NOT TO EXCEED 8 YRS. 30 USC 267 (43 CFR 3611.3-1(a)(1))	NO EXTENSIONS 30 USC 271 (43 CFR 3611.3-1(a)(3))	NOT TO EXCEED 8 YRS. (43 CFR 3611.3-1(a)(1))		NOT TO EXCEED 4 YRS. (43 CFR 3611.3-1(a)(4))
LEASE: ANNUAL RENTAL	NOT LESS THAN: $5/ACRE 1st YR.; $[illegible]/ACRE 2, 3rd, LEASE YRS; $1.00/ACRE EACH AND EVERY YR. THEREAFTER. 30 USC 212 (43 CFR 3503.3-1(b)(1))	$5/ACRE 1st CALENDAR YR. OR FRACTION THEREOF; $5/ACRE 2, 3, 4, 5th CALENDAR YRS; $1.00/ACRE EACH YEAR THEREAFTER. 30 USC 268 (43 CFR 3500.3-1(b)(2))	$5/ACRE 1st CALENDAR YR. OR FRACTION THEREOF; $5/ACRE 2, 3, 4, 5th CALENDAR YRS.; $1.00/ACRE EACH YR. THEREAFTER. 30 USC 263 (43 CFR 3500.3-1(b)(3))	$5/ACRE 30 USC 273 (43 CFR 3500.3-1(b)(3))	$5/ACRE 30 USC 241 (43 CFR 3502.3-1(b)(4))	$5/ACRE 1st YR.; $5/ACRE 2, 3, 4, 5th YRS.; $1.00/ACRE EACH YR. THEREAFTER. (43 CFR 3502.3-6(b))	$1.00/ACRE (43 CFR 3503.3(b)(6))
LEASE READJUSTMENTS (BLM INITIATES ACTION)	EACH 20 YR. PERIOD—SUBJECT TO REASONABLE READJUSTMENT OF TERMS AND CONDITIONS. 30 USC 212 (43 CFR 3530.3-1(b))		EACH 20 YR. PERIOD—SUBJECT TO REASONABLE READJUSTMENT OF TERMS AND CONDITIONS. 30 USC 263 (43 CFR 3530.3-1(b))		EACH 20 YR. PERIOD—SUBJECT TO REASONABLE READJUSTMENT OF TERMS AND CONDITIONS. 30 USC 241(m) (43 CFR 3530.3-1(b))		
LEASE RENEWALS (LESSEE INITIATES ACTION)		RIGHT TO RENEWAL AFTER INITIAL 20 YR. PERIOD AND EACH 10 YR. PERIOD THEREAFTER. 30 USC 262 (43 CFR 3530.3-1(a)(1))		RIGHT TO RENEWAL AFTER INITIAL 20 YR. PERIOD AND EACH 10 YR. PERIOD THEREAFTER. (43 CFR 3530.3-1(a)(1))		RIGHT TO RENEWAL AFTER INITIAL 10 YR. PERIOD AND EACH 10 YR. PERIOD THEREAFTER. (43 CFR 3502.6)	RIGHT TO RENEWAL AFTER INITIAL 20 YR. PERIOD AND EACH 10 YR. PERIOD THEREAFTER. (43 CFR 3529.2-1(a)(2))
PRODUCTION ROYALTY	NOT LESS THAN: 5% OF GROSS VALUE OF OUTPUT OF PHOSPHATES OR PHOSPHATE ROCK AND ASSOCIATED OR RELATED MINERALS. 30 USC 212 (43 CFR 3503.3-2(a))	NOT LESS THAN: 5% OF THE QUANTITY OR GROSS VALUE OF THE OUTPUT OF SODIUM COMPOUNDS AND OTHER RELATED PRODUCTS AT THE POINT OF SHIPMENT TO MARKET. 30 USC 268 (43 CFR 3500.3-2(a))	NOT LESS THAN 5% OF THE QUANTITY OR GROSS VALUE OF THE OUTPUT OF POTASSIUM COMPOUNDS AND OTHER RELATED PRODUCTS, EXCEPT SODIUM, AT THE POINT OF SHIPMENT TO MARKET. 30 USC 263 (43 CFR 3500.3-2(a))	5% OF QUANTITY OR GROSS VALUE OF THE OUTPUT OF SULPHUR AT THE POINT OF SHIPMENT TO MARKET. 30 USC 272 (43 CFR 3500.3-2(a)(1))	AS DETERMINED BY AUTHORIZED OFFICER ON CASE BY CASE BASIS. (43 CFR 3503.3-2(a))	NOT LESS THAN $5/TON OF 2000 POUNDS OF MARKETABLE PRODUCTION. (43 CFR 3502.3-6(a))	AS DETERMINED BY AUTHORIZED OFFICER ON CASE BY CASE BASIS. (43 CFR 3503.3-2(a)(1)(ii))
ALLOWABLE ACREAGE HOLDINGS	1. NOT MORE THAN 2560 ACRES IN ONE UNIT, PERMIT OR LEASE. 2. HOLDINGS IN PERMITS AND/OR LEASES SHALL NOT EXCEED 50,400 ACRES IN THE U.S. 30 USC 184c (43 CFR 3501.1-4(b)(3))	1. AREA IN PERMIT NOT TO EXCEED 5760 ACRES. 30 USC 261 2. NO MORE THAN 5120 ACRES IN PERMITS OR LEASES IN ANY ONE STATE. 30 USC 184(b)(1) and (2) (43 CFR 3501.1-4(b)(2))	1. AREA IN PERMIT OR LEASE NOT TO EXCEED 5760 ACRES. 2. HOLDINGS SHALL NOT EXCEED 51,200 ACRES IN ANY ONE STATE OF WHICH HOLDINGS IN LEASES MAY NOT EXCEED 25,600 ACRES. (43 CFR 3501.1-4(b)(1))	1. A PERMIT OR LEASE SHALL NOT EXCEED 640 ACRES. 2. MAXIMUM OF 3 PERMITS IN ANY ONE STATE PERMITTED AT ANY ONE TIME. 30 USC 271-6 (43 CFR 3501.1-4(b)(4))	1. A LEASE MAY NOT INCLUDE MORE THAN 5120 ACRES. 2. HOLDINGS OF PERMITS AND LEASES MAY NOT EXCEED 7680 ACRES IN ANY ONE STATE. 30 USC 241 (43 CFR 3501.1-4(b)(4))	1. A LEASE MAY NOT INCLUDE MORE THAN 5000 ACRES. 2. HOLDINGS MAY NOT EXCEED 7,680 ACRES IN ANY ONE STATE. (43 CFR 3502.2)	1. A PERMIT MAY NOT INCLUDE MORE THAN 5000 ACRES. 2. HOLDINGS SHALL NOT EXCEED IN ANY ONE STATE 51,400 ACRES OF WHICH NOT MORE THAN 10,240 MAY BE HELD UNDER LEASE. (43 CFR 3501.2-4(b)(2))
CHIEFLY VALUABLE		IN ADDITION TO A VALUABLE DISCOVERY OF SODIUM, LANDS MUST BE CHIEFLY VALUABLE THEREFOR TO RECEIVE A PREFERENCE RIGHT LEASE. 30 USC 262 (43 CFR 3530.1-1(a))	IN ADDITION TO VALUABLE DISCOVERY OF POTASSIUM, LANDS MUST BE CHIEFLY VALUABLE THEREFOR TO RECEIVE A PREFERENCE RIGHT LEASE. 30 USC 262 (43 CFR 3530.1-1(a))	IN ADDITION TO A VALUABLE DISCOVERY OF SULPHUR, LANDS MUST BE CHIEFLY VALUABLE THEREFOR TO RECEIVE A PREFERENCE RIGHT LEASE. 30 USC 272 (43 CFR 3530.1-1(a))			
USE PERMITS	USE PERMIT GRANTS RIGHT TO USE SURFACE NOT EXCEEDING 40 ACRES OF UNAPPROPRIATED AND UNRESERVED PUBLIC LANDS, EXCEPT NATIONAL FOREST LAND, FOR PROPER EXTRACTION, TREATMENT OR REMOVAL OF LEASED PRODUCTS. 30 USC 214 (43 CFR 3540.0-1(b))	USE PERMIT GRANTS RIGHT TO USE A TRACT OF UNDEVELOPED, NON-MINERAL LAND, NOT EXCEEDING 5 ACRES, NOT ADJACENT TO LEASED LAND, CONNECTED WITH AND NECESSARY FOR DEVELOPMENT OF LEASED SODIUM. 30 USC 263 (43 CFR 3540.0-1(a))					
USE OF OTHER MINERALS	LESSEE MAY USE DEPOSITS OF SILICA, LIMESTONE OR OTHER ROCK SITUATED ON PUBLIC LANDS IN THE LEASE. 30 USC 212 (43 CFR 3624.2)						
UNCLAIMED, UNDEVELOPED	PROSPECTING PERMITS MAY BE ISSUED FOR ANY UNCLAIMED, UNDEVELOPED AREA OF OPEN AND AVAILABLE FEDERAL LAND. 30 USC 211(b) (43 CFR 3610.1-1(a))						

potassium, sodium, and phosphate, and 640 acres for sulphur).

In the past, coal could be leased through the Preference Right Lease Application process. BLM stopped awarding prospecting permits for coal in 1976 as a result of the Federal Coal Leasing Amendments of 1976. PRLAs that had been awarded before 1976, however, were "grandfathered" in and could still result in the award of Preference Right Leases. There were originally 184 such applications, of which about 120 are still active. BLM issued 10 Preference Right Leases for coal between 1982 and 1984.

To support the Preference Right Lease Application process for non-energy minerals, BLM needs an information system that will:

- Store information about prospecting permit applications, prospecting permits awarded, PRLAs received, and PRLAs awarded.
- Track and support evaluation of prospecting permit applications, including environmental assessment and regulatory analysis (e.g., verifying that the mineral is leasable on the land in question).
- Automatically identify prospecting permits that have expired and take appropriate action.
- Track and support the evaluation of Preference Right Lease Applications, including environmental assessment, economic analysis, and regulatory verification.
- Generate management reports and support ad hoc inquiry about the past history and current status of the PRLA process.

Part 3: Sizing and Performance Requirements

Performance requirements:

- **Operating schedule/deadlines:** There an no major deadlines or time constraints that pose major problems within the non-energy leasing function. Most activities occur over a period of weeks or months.
- **Security/privacy:** Normal business standards for security and privacy are satisfactory.
- **Response time:** The system should be responsive enough to allow BLM to meet its deadlines and adhere to its operating schedule. The system should provide for easy, convenient use (e.g., same day or next day turnaround of complex inquiries, 5 second response time for simple transactions). There are no stringent, mandatory response requirements associated with the PRLA process, however; therefore, response time should be evaluated in terms of improvements in efficiency and effectiveness rather than absolute standards.
- **Interfaces:**

-- Information about approved PRLAs should be forwarded to BLM's solid mineral inspection and enforcement functions.

o **Reliability:** Normal business standards for reliability are satisfactory.

Major programmatic inputs:

o **Prospecting Permit Applications received:**

-- BLM receives as many a several hundred prospecting permit applications annually.

o **Preference Right Lease Applications received:**

-- BLM receives dozens of PRLDs each year.

Major programatic outputs:

o **Prospecting Permits Awarded:**

-- There were approximately 200 effective prospecting permits as of January 23, 1985.

o **Preference Right Leases Awarded:**

-- As of 1982, there were only about 100 producing leases for non-energy solid leasable minerals on Federal and Indian lands, about half for potash. A total of about 80-90 PRLAs have been approved.

Use of existing system:

o **Number of users:** The number of BLM personnel involved in the non-energy minerals leasing program is fairly small.

o **Amount of use:** The system would be steadily throughout the year. Few if any BLM personnel would use the system on a constant basis.

o **Distribution by office:** Use of the system is proportional to the number of prospecting permits and Preference Right Lease Applications received.

Growth factors:

o BLM does not expect the amount of non-energy mineral leasing activity to change significantly in the next several years.

Part 4: Existing System

Name:	Manual PRLA System
Location:	N/A
Hardware:	N/A
Software:	N/A
Telecommunications:	N/A
Contact:	N/A

<<< BLM Functional Requirement >>>

Competitive Leasing for Non-energy Leasable Minerals, Tar Sands, and Oil Shale

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Part 1: General Information

Associated Program: Non-energy Minerals, Oil Shale, and Tar Sands Leasing

User Organizations: BLM State Offices and District Offices

Owner/Operator/Maintainer: Division of Solid Mineral Leasing (WO-650)

Existing Automated System: None

Part 2: Description of Overall Program, Requirement, and Current Procedures

BLM awards competitive leases for non-energy minerals where such substances are found in quantities sufficient to justify the designation of a Known Leasing Area (KLA). (A KLA is similar to a KGS in the oil and gas program.) There are currently very few KLAs administered by BLM.

For minerals within a KLA, BLM establishes lease tracts, advertises the tracts for bids, evaluates bids received, and awards leases to the highest bidders for each tract. The impetus for a particular lease can come from within BLM or from an expression of interest by private sector individuals and organizations.

In addition to KLAs, BLM uses competitive leasing procedures for oil shale and tar sands. Because of the relative costs of oil shale, tar sands, and traditional energy sources (e.g., oil, gas, coal), there is currently little or no leasing activity in this program. A total of four prototype oil shale and no tar sands leases have been awarded. In addition, oil shale and tar sands development has a significant impact on the environment in the affected areas, and therefore requires substantial environmental analysis. It is unlikely that leasing activity for these substances will grow significantly in the next few years.

To support its operations in the non-coal solid leasable minerals area, BLM needs an information system that will:

- o Store data about Known Leasing Areas and lease applications received through competitive bidding for non-energy leasable minerals.

- o Support the leasing process in Known Leasing Areas, including establishing lease tracts and soliciting and evaluating bids.

- o Provide the capability to administer oil shale and tar sands leasing programs, should such programs become active, including a powerful environmental analysis function.

- o Produce management reports and support on-line inquiries on the past history and current status of the competitve non-energy minerals leasing program.

Part 3: Sizing and Performance Requirements

Performance requirements:

- o **Operating schedule/deadlines:** There are no strict deadlines associated with the non-energy minerals competitive leasing process.

- o **Security/privacy:** Normal business standards for security and privacy are satisfactory.

- o **Response time:** The system should be responsive enough to allow BLM to meet its deadlines and adhere to its operating schedule. The system should provide for easy, convenient use (e.g., same day or next day turnaround of complex inquiries, 5 second response time for simple transactions). There are no stringent, mandatory response requirements associated with the competitive non-energy leasing process, however; therefore, response time should be evaluated in terms of improvements in efficiency and effectiveness rather than absolute standards.

- o **Interfaces:**

  -- Information about leases awarded should be provided to BLM's solid minerals inspection and enforcement functions.

- o **Reliability:** Normal business standards for reliability are satisfactory.

Major programmatic inputs:

- o **Lease Applications:**

  -- For each tract offered for non-energy mineral leasing, BLM will receive a varying number of bids, depending on the likely value of the tract and the demand for the material being offered.

Major programatic outputs:

- **Leases awarded:**

  -- In fiscal 1984, BLM awarded only two leases for non-energy minerals through competitive bidding. Both leases were for phosphates in the state of Florida (Eastern States Office). The leases yielded over $23,000 in accepted bonus bids.

Use of existing system:

- **Number of users:** Relatively few BLM personnel would use the system because the number of leases issued is so small.

- **Amount of use:** The amount of use of the system would be relatively small overall. On any one lease, however, usage could be quite intense.

- **Distribution by office:** Use of the system is proportional to the number of leases issued by each office.

Growth factors:

- BLM does not expect the amount of non-energy mineral leasing activity to change significantly in the next several years.

- There is currently little or no leasing activity for oil shale or tar sands. Unless energy prices rise dramatically (e.g., by a factor of three to six), it is unlikely that oil shale and tar sands could be produced economically.

Part 4: Existing System

Name:	Solid Leasable Minerals System (SLMS)
Location:	Denver Service Center
Hardware:	Honeywell DPS 8/70 Mainframe
Software:	ASPEN/2
Telecommunications:	BLM Network

Contact: Allen Agnew, WO-660

<<< BLM Functional Requirement >>>

Maintain Solid Minerals Lease and Mine Files

Part 1: General Information

Associated Program: Solid Minerals Monitoring, Inspection, and Enforcement

User Organizations: BLM State Offices and District Offices

Owner/Operator/Maintainer: Division of Solid Mineral Operations (WO-660)

Existing Automated System: Solid Leasable Minerals System (SLMS)

Part 2: Description of Overall Program, Requirement, and Current Procedures

For each lease awarded for solid leasable minerals (e.g., coal, phosphates, sulphur), BLM maintains a manual file containing key documents describing the lease, mine, production history, and other features of the tract. The exact documents stored in the lease files vary somewhat based on the mineral being produced. For example, BLM's specific responsibilities for oversight of Federal coal leases are defined in the Mineral Lands Leasing Act and 43 CFR 3480.

Overall, the number of leases for coal and other solid non-leasable minerals is much smaller than the number of oil and gas leases. For example, BLM's Eastern States Office has about 6,000 oil and gas leases compared to only 200 other mineral leases. Solid mineral lease operations, however, are usually extremely complex. The typical BLM mining engineer in the coal program may be responsible for only five to ten leases.

Each lease may involve the following types of activities:

- **Lease readjustments.** Readjustments are initiated by BLM for Federal coal leases. Readjustments provide BLM with the opportunity to modify lease terms to reflect changing conditions. For example, BLM typically changes the royalty rates on leases to generate increased revenues for BLM. Coal, phosphate, potassium, and gilsonite leases are generally eligible for readjustment every 20 years.

- **Lease renewals.** Lessees initiate lease renewals in order to maintain

control of desirable land. Lease renewals can result in changes in lease terms and conditions, but usually not to the extent of lease readjustments. Leases for sodium, sulphur, asphalt, and hardrock minerals must be renewed every 20 years.

- **Logical mining units.** Coal lessees can apply to BLM for the creation of a logical mining unit (LMU). An LMU is an economic and managerial entity covering several different Federal leases, land leased from states or private individuals, and/or owned by the lessee. For regulatory purposes, the components of logical mining units are treated as a whole rather than independent tracts. Logical mining units allow operators to produce coal more efficiently than might otherwise be possible.

- **Suspensions.** BLM has the authority to grant or order suspensions in operations at coal leases. There are three types of suspension:

  -- Suspensions of operations and production are ordered by BLM in the interests of conservation. For example, BLM may order a suspension to prevent extremely high-quality metallurgical coal from being mined for use in power generation.

  -- Suspensions of operations are granted by BLM if the operator is unable to continue economic operations of a lease.

  -- Force Majeure suspensions are granted in the presence of outside events that cannot be controlled by the operator, such as earthquakes and strikes.

  Suspensions have the effect of suspending many regulatory requirements for continued production, minimum royalty payments, and so on.

- **Royalty reductions.** Lessees can apply for temporary reductions in royalty rates in situations of economic hardship. BLM, the Minerals Management Service, and other Federal agencies review the application and make a recommendation to grant or deny the reduction.

- **Mine plans.** Each lessee must file a mine plan containing basic information about the mine, production estimates and techniques, production verification data, and projected reserves. BLM keeps this data on file for use in inspection and enforcement activities.

- **Exchanges.** BLM has the authority to exchange coal leases with private citizens in specific cases as authorized by Congress.

- **Resource Recovery and Protection Plans.** Resource Recovery and Protection Plans (R2P2s) must be submitted and approved before mining operations begin in order to address long-term environmental protection requirements.

- **Exploration Plans.** BLM receives and approves exploration plans for leased and unleased Federal lands. BLM grants an exploration license if the exploration plan is approved.

To support this function, BLM needs an information system that will:

- o Store appropriate summary data about each lease in a readily accessible form, displaying data in map and/or graphic form if cost-justified.
- o Support BLM personnel in evaluating different applications from lessees and operators, including LMUs, royalty reductions, suspensions, renewals, and readjustments.
- o Generate management reports and support on-line inquiries on the past history and current status of BLM's solid mineral leases.

Part 3: Sizing and Performance Requirements

Performance requirements:

- o **Operating schedule/deadlines:** There are no critical operating deadlines in maintaining mine files. Documents received should be filed as soon as possible to provide for maximum timeliness of information.
- o **Security/privacy:** Normal business standards for security and privacy are satisfactory for most mine file data. Some mine log information is highly confidential and must be carefully protected.
- o **Response time:** Most mine file activity is not subject to extremely tight deadlines. Accordingly, the system should provide for easy, convenient use (e.g., same day turn-around of report requests, 5 second response to simple transactions and data entry transmissions). Response time should be based on the resulting improvements to the efficiency and effectiveness of BLM's operations, not on any absolute, arbitrary standard.
- o **Interfaces:**
  - -- The solid mineral mine and lease files are the basis for all monitoring, inspection, and enforcement activity. Accordingly, the information should be easily accessible to all other solid mineral operations functions.
  - -- The issuance of a lease for solid mineral activity should result in the creation of a mine and lease file to act as the basis for appropriate operations functions.
- o **Reliability:** Normal business standards for reliability are satisfactory.

Major programmatic inputs:

- **Readjustments:**

  -- There were 34 readjustments to coal leases in fiscal 1984.

- **Suspensions and royalty reductions:**

  -- Suspensions and royalty reductions are extremely rare.

- **Logical mining units:**

  -- No LMUs were approved in fiscal 1984.

- **Exchanges:**

  -- BLM is unlikely to exchange more than 5-10 leases in any one year.

- **Exploration plans:**

  -- BLM reviewed 13 exploration plans in fiscal 1984. About 50 are currently active.

- **Resource Recovery and Protection Plans:**

  -- BLM processed 9 R2P2s in fiscal 1984.

Major programatic outputs:

- For each programmatic input, there is a corresponding programmatic output represented by the successful processing of the relevant application.

- At the end of fiscal 1984, there were a total of 628 Federal coal leases, of which 120 were producing. These leases covered 944,550 acres and contained an estimated 17.6 billion tons of recoverable reserves. The number of leases fell by four during fiscal 1984, reflecting the issuance of six new leases and the relinquishment of ten leases. The number of acres and estimated recoverable reserves also fell slightly.

Use of existing system:

- **Number of users:** The solid mineral lease and mine files are used by about 200 of BLM solid mineral operations personnel.

- **Amount of use:** The system is used intensively on a daily basis to retrieve and store information about solid mineral leases.

- **Distribution by office:** Use of the system is proportional to the number of solid mineral leases in each office.

- o Refer to Figure A-11 for sizing information.

Growth factors:

- o BLM personnel do not expect the number of solid mineral leases (and hence the amount of monitoring, inspection, and enforcement activity) to grow significantly in the next several years.

- o No major policy change are anticipated in the near future. Several significant provisions of recent legislation (e.g., Section 3) are only now becoming effective, however, and will increase the complexity of monitoring, inspection, and enforcement of existing leases.

Part 4: Existing System

Name:	Solid Leasable Minerals System (SLMS)
Location:	Denver Service Center
Hardware:	Honeywell DPS 8/70 Mainframe
Software:	ASPEN/2
Telecommunications:	BLM Network
Contact:	Allen Agnew, 100-660

Figure A-11. The New Mexico and Utah State Office have the largest number of solid mineral leases.

State Office	Active Coal Leases	Active Other Solid Mineral Leases
Alaska	2	---
Arizona	---	---
California	---	7
Colorado	78	8
Eastern States	---	170
Idaho	---	59
Montana	25	1
Nevada	---	20
New Mexico	89	153
Oregon	---	---
Utah	226	88
Wyoming	32	30
TOTAL	452	536

Source: Public Land Statistics 1984. All data as of January 23, 1985.

<<< BLM Functional Requirement >>>

Solid Leasable Minerals Regulatory Requirements

Part 1: General Information

Associated Program: Solid Minerals Monitoring, Inspection, and Enforcement

User Organizations: BLM State Offices and District Offices

Owner/Operator/Maintainer: Division of Solid Mineral Operations (WO-660)

Existing Automated System: Solid Leasable Minerals System (SLMS)

Part 2: Description of Overall Program, Requirement, and Current Procedures

Federal legislation imposes several important requirements on lessees of Federal coal. BLM is responsible for enforcing these requirements and taking appropriate action against lessees who violate applicable legislation and regulations.

- **Diligence.** Diligence requirements apply to all Federal coal leases awarded after 1976. For each lease, the operator must produce at least 1% of the estimated recoverable reserves within 10 years of being awarded the lease. Every year after the first 1% has been produced, the lessee must produce an additional 1% of the estimated recoverable reserves. For logical mining units, diligence requirements apply to the LMU overall and not to each individual lease. BLM determines estimated recoverable reserves based on its own on-site inspections and data supplied by the lessee.

- **Section 3.** Section 3 requirements are similar in effect to diligence, but apply to Federal coal leases awarded before 1976. Any leases awarded before 1976 (and still held) must be producing by 1986; if not, the responsible party and any members of its corporate family are prohibited from being awarded any leases for programs under the Mineral Leasing Act. The responsible party can be the lessee or any organization to whom the lessee may have assigned the lease in an arms-length transaction.

To support these functions, BLM needs an information system that will:

- o Store the information needed to identify potential violations of regulatory requirements and highlight them for appropriate action by BLM personnel.

- o Support BLM personnel in determining whether or not regulatory requirements have been violated, including:

  -- Estimates of recoverable reserves.
  -- Tracking of production statistics.
  -- Identification of "corporate family" relationships.

- o Track the status of BLM's activities in investigating and taking action on potential violations.

- o Generate management reports and support on-line inquiries concerning the past history and current status of relevant regulatory violations and BLM's response.

Part 3: Sizing and Performance Requirements

Performance requirements:

- o **Operating schedule/deadlines:** Diligence requirements are applicable to all Federal coal lease beginning no more than 10 years after the lease is awarded, and are reviewed annually thereafter. Section 3 requirements become effective in early 1986 for all pre-1976 Federal coal leases; activity will be very high for at least several years but should eventually taper off.

- o **Security/privacy:** Normal business standards for security and privacy are satisfactory.

- o **Response time:** Most regulatory monitoring activity is not subject to extremely tight deadlines. Accordingly, the system should provide for easy, convenient use (e.g., same day turn-around of report requests, 5 second response to simple transactions and data entry transmissions). Response time should be based on the resulting improvements to the efficiency and effectiveness of BLM's operations, not on any absolute, arbitrary standard.

- o **Interfaces:**

  -- Regulatory monitoring, especially diligence, is based on information contained in the solid mineral lease and mine files. At the same time, the results of regulatory monitoring activities (e.g., the identification of a firm in violation of Section 3 standards) must be reflected in the lease files and in BLM-wide data bases such as the master name system.

- **Reliability:** Normal business standards for reliability are satisfactory.

Major programmatic inputs:

- **Number of Federal coal leases subject to diligence:**

  -- At the end of fiscal 1984, a total of 244 Federal coal leases were subjected to diligence. By 1990, this will have risen to 90% of all coal leases, or about 550.

- **Number of Federal coal leases subject to Section 3:**

  -- All coal leases awarded prior to 1976 are subject to Section 3 requirements. All leases are subject to either diligence or Section 3.

Major programatic outputs:

- **Diligence violations detected:**

  -- Diligence violations are fairly rare.

- **Section 3 violations detected:**

  -- The Section 3 program is not yet effective, so no violations have been detected.

Use of existing system:

- **Number of users:** For each solid mineral lease, relevant regulatory requirements must be enforced by the responsible mining engineers.

- **Amount of use:** Regulatory monitoring occurs on a periodic basis, but at least annually for each lease. There is likely to be a peak period of use shortly after the end of each year-long period for which regulatory requirements are applicable.

- **Distribution by office:** Use of the system will be proportional to the number of Federal coal leases in a particular office.

Growth factors:

- BLM personnel do not expect the number of solid mineral leases (and hence the amount of monitoring, inspection, and enforcement activity) to grow significantly in the next several years.

- No major changes in operations policy are anticipated. Several significant provisions of recent legislation (e.g., Section 3) are

only now becoming effective, however, and will increase the complexity of monitoring, inspection, and enforcement of existing leases.

Part 4: Existing System

Name:	Solid Leasable Minerals System (SLMS)
Location:	Denver Service Center
Hardware:	Honeywell DPS 8/70 Mainframe
Software:	ASPEN/2
Telecommunications:	BLM Network
Contact:	Allen Agnew, 100-660

<<< BLM Functional Requirement >>>

Solid Leasable Minerals Inspection and Enforcement

Part 1: General Information

Associated Program: Solid Minerals Monitoring, Inspection, and Enforcement

User Organizations: BLM State Offices and District Offices

Owner/Operator/Maintainer: Division of Solid Mineral Operations (WO-660)

Existing Automated System: Solid Leasable Minerals System (SLMS)

Part 2: Description of Overall Program, Requirement, and Current Procedures

BLM's solid mineral inspection and enforcement program is intended to ensure operator compliance with lease terms and conditions, exploration and mining plans, and regulatory and statutory requirements. For example, BLM inspectors verify that operators are conducting mining operations in a manner that consistent with plans filed with BLM -- within approved boundaries, progressing in the required direction, and in accordance with the mine design (e.g., width of entries).

BLM's State and District Offices conduct inspections and take appropriate enforcement action against lessees and operators of Federal solid mineral leases. BLM personnel responsible for solid minerals inspection are located at the State Office or District Office, depending on the extent to which relevant responsibilities have been delegated. For example, inspections are performed at the State Office level in Montana and at the District Office level in Colorado. Resource Area Offices may also participate in inspection and enforcement activities by conducting production verification visits and other actions.

Violations are discussed with the operator to identify appropriate corrective actions. BLM has recourse to a variety of authorities (depending on the nature of the violation) in order to enforce compliance.

Inactive tracts are inspected at least once annually. BLM also conducts inspections during exploration activites, both during exploration itself and after exploration has been completed. Finally, operating mines are inspected

with an emphasis on three areas: resource recovery and protection; mine plan compliance; and production verification. Inspection and enforcement data is stored in BLM's Solid Leasable Mineral System (SLMS).

To support this function, BLM needs an information system that will:

- Store relevant information about the leases and mines to be inspected.
- Identify leases and mines for inspection based on criteria defined by BLM (e.g., priority, time since last inspection, size).
- Track the status of BLM's solid mineral inspection program.
- Maintain information about inspection violations and BLM's efforts to obtain satisfactory resolution.
- Generate management reports and support on-line inquiries concerning the past history and current status of BLM's solid mineral inspection program, including the number and type of inspections conducted, the number and significance of violations detected, the number of undesirable events reported, and the status of follow-up actions to bring operators into compliance.

Part 3: Sizing and Performance Requirements

Performance requirements:

- **Operating schedule/deadlines:** Mines are inspected at least once annually. Most inspection and enforcement activity can be predicted at least several days in advance.
- **Security/privacy:** Normal business standards for security and privacy are satisfactory for most data. Some mine information may be confidential, with special requirements for protection.
- **Response time:** Most inspection and enforcement activity is not subject to extremely tight deadlines. Accordingly, the system should provide for easy, convenient use (e.g., same day turn-around of report requests, 5 second response to simple transactions and data entry transmissions). There are special requirements, however, for responding to undesirable events; in these situations, the system should support immediate access to critical inspection and enforcement data.
- **Interfaces:**
  - -- Inspection and enforcement functions are based on data in the solid mineral lease and mine files. Conversely, inspection and enforcement results should be reflected in those files for future use.

- **Reliability:** Normal business standards for reliability are satisfactory.

Major programmatic inputs:

- **Number of mines to be inspected:**

  -- There are approximately 1,500 solid mineral leases.

Major programatic outputs:

- **Number of inspections conducted:**

  -- Each solid mineral lease is inspected at least once annually, and often more frequently. For example, producing mines are subject to quarterly production verification inspections.

Use of existing system:

- **Number of users:** BLM's mining engineers and geologists conduct solid mineral inspections. Most, but not all of BLM's approximately 200 mining engineers and solid mineral geologists perform inspections.

- **Amount of use:** The system is used on a daily basis by solid mineral inspection personnel to record the results of past inspections and print out reports for use in upcoming inspections.

- **Distribution by office:** Use of the system in a particular office is proportional to the number of solid mineral leases.

Growth factors:

- BLM personnel do not expect the number of solid mineral leases (and hence the amount of monitoring, inspection, and enforcement activity) to grow significantly in the next several years.

- No major changes in operations policy are anticipated. Several significant provisions of recent legislation (e.g., Section 3) are only now becoming effective, however, and will increase the complexity of monitoring, inspection, and enforcement of existing leases.

Part 4: Existing System

Name: Solid Leasable Minerals System (SLMS)

Location: Denver Service Center

Hardware:	Honeywell DPS 8/70 Mainframe
Software:	ASPEN/2
Telecommunications:	BLM Network
Contact:	Allen Agnew, WO-660

<<< BLM Functional Requirement >>>

Mining Claims

Part 1: General Information

Associated Program: Mining Claims

User Organizations: BLM State Offices

Owner/Operator/Maintainer: Division of Mining Law and Salable Minerals (WO-680)

Existing Automated System: Mining Claim Recordation System

Part 2: Description of Overall Program, Requirement, and Current Procedures

BLM administers the Mining Law of 1872, as amended, through which individual citizens and corporations licensed to do business in the U.S., may locate mining claims on the public domain for those minerals not subject to the Mineral Leasing Act or the Materials Sales Act. This class of minerals, known as "locatables," includes metallic (e.g., gold, silver, copper and zinc) and many nonmetallic (e.g., bentonite, kaolin, zeolites, gypsum, uncommon building stone) commodities.

After determining that the land of interest is open to mineral entry, a mining claimant locates the lode or placer mining claim, mill or tunnel site, on the ground and records notice of such location in the appropriate county courthouse. Within 90 days of location the BLM State Office must receive a cop of the notice for recordation or the mining claim or site is deemed abandoned. During FY 1985 over 95,000 new mining claims were recorded with BLM.

The law requires the performance of at least $100 worth of labor or improvements made annually to benefit each mining claim. Furthermore, an affidavit of this assessment work must be filed annually with BLM or the mining claim is deemed abandoned. Before December 31, 1984, over 832,000 such filings ere made for this calendar year. Annual filings ere not received for nearly 200,000 mining claims that were of record in 1983, becoming void by operation of law.

Mining claimants on BLM-administered public land are subject to regulation

of their surface disturbing activities. Activities proposed to disturb less than 5 acres require a notice to the BLM District Office whereas greater than 5 acres unrelaimed disturbance requires a plan of operations. Over 2,500 notices and plans were filed with BLM in FY 1985, all of which received review and analysis to determine that unnecessary and undue degradation of the land would be prevented. A notice of plan may cover operations on more than one mining claim (or on unclaimed land). Claimants operating at the casual use level need not notify BLM.

Upon the demonstration that a valuable deposit of locatable mineral(s) exists within the mining claim (and several other requirements such as mineral survey, title certificate, publication and payment), the mining claimant is entitled to a mineral patent. With certain few exceptions, a mineral patent is a fee simple transfer of ownership of the land. There is no requirement to ultimately seek patent. A mining claimant may produce from an unpatented claim subject only to Federal regulations.

To support this function, BLM needs an information system that will:

- Store geographic data about mining claims and sites recorded with BLM.
- Allow rapid adjudication of land status vs. mining claims recorded.
- Support the entry of annual filings and identify existing mining claims for which none has been received, so that a reminder notice could be automatically sent.
- Support a casework tracking system under the surface management regulations--identifying operations/claimants, mining claims, filing dates, distinguishing notices from plans, Wilderness Study Areas, plan approval dates, and anticipated reclamation dates.
- Support a mineral patent application casework tracking system--identifying mining claims under application, mineral survey numbers, patent applicants, filing dates, publication dates, adverse claimants (if any), field work status, mineral report authors and recommendation, contest changes and dates (if any), hearing dates and decision (if applicable), patent numbers, reservations, exceptions, and easement.
- Generate summary reports and allow on-line inquiries on the past history and current status of the mining law administration program--including the number of active claims on record, sorted by various geographic factors (T&R, BLM District, State, lat, and long) and by type (lode, placer, mill-sites, tunnelsites), and by surface owner (BLM, FS, State, or private).

Part 3: Sizing and Performance Requirements

Performance requirements:

- **Operating schedule/deadlines:** The biggest scheduling factor in the mining claims program is the large number of annual notices received at the end of each fiscal year. This large peak workload requires several months to enter into the Mining Claim Recordation System.

- **Security/privacy:** Normal business standards for security and privacy are satisfactory.

- **Response time:** Response time should be adequate to meet the programs operational and scheduling needs. In particular, BLM needs excellent response time in order to process the annual notices as quickly as possible when they are received. Overall, however, response time should be set based on its impact on the efficiency and effectiveness of BLM's operations rather than on any absolute standard.

- **Interfaces:**

  -- Information about mining claims should be provided to BLM's field inspection and enforcement operations.

  -- Mining claims data should be recorded in BLM's land records system.

- **Reliability:** Normal business standards for reliability are satisfactory.

Major programmatic inputs:

- **Mining claims (filed for recordation):**

  -- In fiscal 1985, BLM received over 95,000 location notices for recordation.

- **Annual filings received:**

  -- In calendar 1984, BLM received over 832,000 affidavits of assessment work and notices and plans of operations filed.

Major programatic outputs:

- **Mining claims** recorded after checking land status and timeliness:

  -- In FY 1985, BLM assigned mining claim numbers to over 95,000 claims.

- Active mining claims and sites of record:

  -- At the end of CY 1984, BLM had annual filings for 832,155 claims, plus 128,500 newly recorded claims for a total of 960,655 active claims.

Figure A-12. BLM's Nevada State Office has the largest mining claims program.

State Office	Unpatented Claims of Record (9/30/84)	Claims Accepted for Recording in Fiscal 1985	Mining Claims Patented in Fiscal 1985
Alaska	63,577	3,431	62
Arizona	183,038	20,895	1
California	129,616	23,764	2
Colorado	171,734	7,125	35
Idaho	77,898	8,859	22
Montana	77,691	9,853	75
Nevada	272,431	35,511	97
New Mexico	56,169	5,505	3
Oregon	55,401	10,883	2
Utah	235,498	11,126	31
Wyoming	102,683	4,876	33
Eastern States	2,046	265	---
TOTAL	1,427,782	142,091	363

Source: Public Land Statistics 1984.

- o Approved surface management plans and notices:

  -- In FY 1985, BLM was on notice as to 2107 operations proposed to disturb less than 5 acres, and had approved nearly 480 operations of larger disturbance or within WSAs.

- o Mineral patent application status:

  -- In FY 1984, BLM issued mineral patents to 106 lode claims containing 1,870 acres, 192 placer claims containing 6,538 acres, and 65 mill sites containing 389 acres.

  -- In FY 1984, BLM closed 125 mineral patent cases by patent issuance rejection, or contest action through final decision.

Use of existing system:

- o **Number of users:** The Mining Claim Recordation System is used by about three to six personnel in each State Office, as well as a small number of Washington Office personnel.

- o **Amount of use:** The system is used extremely heavily during October through February, as BLM processes the annual notices of improvement.

- o **Distribution by office:** Use of the system is proportional to the number of active mining claims.

- o **Refer to Figure A-12 for sizing information.**

Growth factors:

- o BLM expects the amount of activity in the mining claims area to remain fairly stable in the next several years. No major policy changes are anticipated.

Part 4: Existing System

Name: Mining Claim Recordation System

Location: Denver Service Center

Hardware: Honeywell DPS 8/70 Mainframe

Software: COBOL/DMIV-TP

Telecommunications: BLM Network

Contact: Tony Alcon, DSC

<<< BLM Functional Requirement >>>

Salable Minerals

Part 1: General Information

Associated Program: Salable Minerals

User Organizations: BLM State Offices and District Offices

Owner/Operator/Maintainer: Division of Mining Law and Salable Minerals

Existing Automated System: Vegetable and Mineral ADP Resource System, Material Sales

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Part 2: Description of Overall Program, Requirement, and Current Procedures

Some mineral materials are classified as "salable", allowing them to be sold directly to the public rather than leased or obtained through a mining claim. Salable substances include sand, gravel, top soil, aggregate, stone, and other common materials.

Mineral materials are sold through several procedures:

- **Negotiated sale.** Negotiated sales are initiated by a public applicant who has typically identified a source of material (e.g., sand, gravel) on Federal land and knows the amount of material that he wishes to purchase. BLM verifies the status of the land on which the material is located (e.g., no mining claim patents have been filed for the land). The applicant then files a mining and reclamation plan. BLM evaluates the plan, performs an environmental analysis to satisfy NEPA requirements, and appraises the value of the mineral material. BLM also defines stipulations and mitigating measures for the sale (e.g., top soil must be piled separately and covered) and signs a contract with the applicant. The contract limits the amount of material that can be removed. The applicant must post a bond and pay for the material up front. BLM receives a production report every year, inspects the site annually, and performs a final compliance check (e.g., to ensure that the applicant has completed all required reclamation steps) before releasing the bond. In some cases, BLM will perform all the removal of salable mineral material without charging the applicant (e.g., a non-profit

organization) for the material. The applicant must meet regulatory requirements.

- **Competitive sale.** In this case, BLM identifies the material to be sold. Competitive sales are usually motivated by the large volume of material involved or by expressions of interest by several parties for the same material. The responsible BLM office checks the land status, assesses the environmental impact, defines appropriate stipulations, appraises the value of the material, advertises the sale, receives bids, and awards the sale to the high bidder. Inspection and enforcement procedures are similar to negotiated sales.

- **Non-exclusive use sites.** Non-exclusive use sites are BLM-managed tracts open to all buyers. BLM acts as the applicant in establishing the non-exclusive use site, performing all necessary land status checks, economic appraisals, and environmental analyses. There are two types of non-exclusive use sites:

  -- **Community pits.** At community pits, removal of the material creates a surface disturbance (e.g., removal of large amounts of sand). In this case, BLM's charges for the material include all necessary site preparation and reclamation costs.

  -- **Common use areas.** In common use areas, the substance to be removed (e.g., stones used in decorative landscaping) are lying on the surface, usually over a large area. BLM's charges for the materials do not need to reflect site preparation and reclamation costs, since these activities are not necessary.

BLM completes over 1,000 negotiated and competitive sales each year, and operates approximately 100-200 non-exclusive use sites.

Field offices also conduct enforcement and inspection programs to identify and take action against individuals who remove salable material from Federal land without permission. Overall, however, these enforcement activities receive relatively little emphasis -- especially at the Department of Justice -- because of the low dollar values involved.

To support the salable minerals program, BLM needs a system that will:

- Store data about negotiated and competitive sales, free use permits, and non-exclusive use sites.

- Support BLM personnel in evaluating potential sales: economic value, environmental impact, land status, and so on.

- Provide a "tickler" capability to ensure that purchasers file all necessary annual production reports and other notices on a regular basis.

- Provide "point-of-sale" support for non-exclusive use sites (e.g., pricing, cash control, data capture for management reporting).

- o Identify and flag situations in which purchasers violate Federal limits on the amount of material that any one person can buy in any one state.
- o Generate management reports and support on-line inquiries on the past history and current status of the salable mineral program, including the number of sales of each type, the type and amount of substances sold, revenues generated, type of purchaser, and resources used.

Part 3: Sizing and Performance Requirements

Performance requirements:

- o **Operating schedule/deadlines:** There are no major deadlines or operating cycles in the salable mineral program.
- o **Security/privacy:** Normal business standards for security and privacy are satisfactory.
- o **Response time:** Response time should be adequate to meet the program's operational and scheduling needs. In particular, any capabilities provided for "point-of-sale" support to non-exclusive use sites should be adequate to minimize waiting time for public users. Overall, however, response time should be set based on its impact on the efficiency and effectiveness of BLM's operations rather than on any absolute standard.
- o **Interfaces:**
  - -- Sales and non-exclusive sites should be be approved only after a review of BLM's land records to verify land status; at the same time, land status should be updated to reflect salable mineral activity.
- o **Reliability:** Normal business standards for reliability are satisfactory.

Major programmatic inputs:

- o **Negotiated sale applications:**
  - -- The number of negotiated sales is controlled by the number of application submitted by the public.
- o **Free use permits:**
  - -- The number of free use permits is controlled by the number of applications received by BLM.

Figure A-13. The Nevada, New Mexico and California State Offices manage the largest salable mineral operations.

State Office	Number of Negotiated and Contract Sales	Number of Free-Use Permits Issued	Number of Disposals From Non-Exclusive Use Sites
Alaska	---	78	---
Arizona	---	2	2
California	35	113	81
Colorado	21	13	202
Idaho	5	33	520
Montana	---	1	40
Nevada	52	75	609
New Mexico	359	260	538
Oregon	10	94	103
Utah	10	31	203
Wyoming	31	46	202
TOTAL	523	732	2,560

Source: Public Land Statistics 1984.

All data as for fiscal 1984.

NOTE: The time and effort needed to complete disposals from non-exclusive use sites are fairly small.

- **Competitive sales initiated:**

  -- BLM controls the number of competitive sales by identifying and offering tracts to the public.

- **Sales at non-exclusive use sites:**

  -- The number of sales at non-exclusive use sites is determined by the level of public interest and demand.

Major programatic outputs:

- **Number of competitive and negotiated sales:**

  -- In fiscal 1984, BLM made a total of 1,255 competitive andd negotiated sales.

- **Number of free use permits:**

  -- In fiscal 1984, BLM issued 732 free-use permits.

- **Number of non-exclusive use sites operated:**

  -- In fiscal 1984, BLM made a total of 2,560 sales from non-exclusive use sites.

Use of existing system:

- **Number of users:** There are relative few BLM personnel involved in the salable mineral program.

- **Amount of use:** The system would be used on a steady basis by relevant personnel. Few if any BLM employees would use the system on a full time basis.

- **Distribution by office:** Use of the system is proportional to the level of salable minerals activity in each office.

- **Refer to Figure A-13 for sizing information.**

Growth factors:

- BLM expects the amount of activity in the salable minerals program area to remain fairly stable in the next several years. No major policy changes are anticipated.

Part 4: Existing System

Name: Vegetative and Mineral ADP Resource System

Location:	Denver Service Center
Hardware:	Honeywell DPS 8/70 Mainframe
Software:	ASPEN/2
Telecommunications:	BLM Network
Contact:	Tom Costello, Division of Forestry (WO-230)

<<< BLM Functional Requirement >>>

Adjudicate Energy and Mineral Leases

Part 1: General Information

Associated Program: Energy and Mineral Cross Cutting Activities

User Organizations: BLM State Offices

Owner/Operator/Maintainer: Division of Fluid Mineral Leasing (WO-620)
Division of Solid Mineral Leasing (WO-650)

Existing Automated System: ORCA and Case Recordation System

Part 2: Description of Overall Program, Requirement, and Current Procedures

In the energy and mineral programs, adjudication is the process by which BLM evaluates and issues decisions on applications received from the public. Adjudication covers a variety of specific transactions: coal leases; oil and gas leases, including leases awarded through competitive, over-the-counter, and simultaneous programs; lease renewals and readjustments; lease relinquishments, terminations, and cancellations; and a variety of other cases.

For each case type, BLM has defined a series of administrative steps to be taken in order to issue a decision. While the steps vary in each case, common activities include:

- Logging in applications submitted by the public, including date/time stamping and identification number assignment.
- Preparing legal land descriptions and using BLM title records and plats to ensure that the land is owned by the U.S., that the land is available for the requested purpose (e.g., oil and gas leasing), and so on.
- Verifying applications to ensure compliance with all relevant laws and regulations (e.g., acreage limitations).
- Publishing all necessary public notices.

- Distributing available information in response to public inquiries.
- Initiating any necessary technical evaluations, such as Environmental Analyses, economic studies, and geological assessments.
- Actually opening bids, comparing bonus bid amounts, and announcing the apparent high bidder, as well as depositing moneys received and returning necessary materials (e.g., undeposited checks) to unsuccessful bidders.
- Verifying that apparently successful applicants are conforming to applicable regulations (e.g., bonding requirements, maximum acreage conditions).
- Providing formal notification to all successful and unsuccessful applicants.
- Preparing and executing the lease or agreement.

BLM handbooks describe the exact steps to be performed for each type of case, including form letters, procedures, deadlines, responsible individuals, and recordkeeping.

Adjudication is performed in BLM's State Offices. Each States Mineral Resources Division typically includes an Adjudication Branch or Section, usually subdivided based on geography (i.e., the location of the land for which an application has been filed) or by type of case (i.e., solid minerals versus fluid minerals). Most State Offices have between about ten and thirty adjudicators.

To support the adjudication function, BLM needs an information system that will:

- Store appropriate data about each active application and case.
- Provide a "tickler" file capability to identify the proper action to be taken on each case, the responsible individual, and the deadline.
- Support any decisions to be made during the adjudication process, such as acreage limits, land status verification, bonding requirements, and so on.
- Improve the productivity of adjudicators by fully or partially automating some manual procedures, such as preparation of legal land descriptions.
- Generate management reports and support on-line inquiries on the past history and current status of the adjudication program, including the number and types of cases received, the current status of all cases in inventory, the amount of time required to complete each step in the adjudication process, and the resources required to adjudicate specific categories of applications.

Part 3: Sizing and Performance Requirements

Performance requirements:

- o Operating schedule/deadlines: The adjudication process is conducted under a variety of operating schedules and deadlines. For most case types, BLM has internal objectives for the amount of time available before a decision should be issued.

- o Security/privacy: Normal business standards for security and privacy are satisfactory.

- o Response time: Response time should be adequate to support BLM's operating deadlines and high user productivity. Since the system will be heavily used by hundreds of adjudicators, excellent response time (e.g., five second response to simple transactions) is extremely important.

- o Interfaces:

  -- The final step in the adjudication process is issuing a lease. All relevent lease information should be made available to relevant mineral operations functions.

  -- Resource analyses, such as KGS clear-listings and environmental impact statements, are a key input into adjudication.

- o Reliability: Normal business standards for reliability are satisfactory.

Major programmatic inputs:

- o Lease applications received:

  -- The most important programmatic input to adjudication is leases and other applications received. In fiscal 1984, BLM received 68,497 mineral adjudication cases (according to the Public Land Statistics 1984).

Major programatic outputs:

- o Leases awarded:

  -- The most important programmatic output of the adjudication process is leases issued. In fiscal 1984, BLM closed 63,770 mineral adjudication cases (according to the Public Land Statistics 1984).

Use of existing system:

Figure A-14. The Wyoming and Montana State Offices account for almost half of BLM's adjudication workload.

State Office	Oil, gas, and geothermal	Coal leasing	Other mineral leasing	Mineral material sales	Other cases
Alaska	2,285	---	---	31	18
Arizona	1,344	---	1	80	283
California	942	---	41	83	866
Colorado	3,354	35	10	177	168
Eastern States	2,413	3	134	---	---
Idaho	1,382	---	38	553	113
Montana	10,348	25	2	---	104
Nevada	2,824	---	14	5	222
New Mexico	6,721	232	35	661	57
Oregon	3,523	---	14	111	236
Utah	5,167	17	73	---	3
Wyoming	18,656	37	81	198	50
TOTAL	58,959	349	443	1,899	2,120

Source: Public Land Statistics 1984

All figures represent mineral adjudication cases closed in fiscal 1984.

- **Number of users:** Each BLM State Office has approximately ten to thirty adjudicators to support the energy and mineral programs.

- **Amount of use:** The system will be used heavily by BLM adjudicators. Many personnel will enter dozens of transactions daily.

- **Distribution by office:** Use of the system is proportional to the number of energy and mineral leases adjudicated.

- **Refer to Figures A-1, A-2, A-3, A-9, and other figures in this appendix for sizing information. Figure A-14 depicts the number of adjudication cases received in fiscal 1984 by State Office.**

Growth factors:

- Overall, BLM managers do not expect any growth in the number of energy and mineral leases adjudicated over the next several years. If energy prices decline, the number of leases awarded may actually fall somewhat.

Part 4: Existing System

Name:	ORCA and Case Recordation System
Location:	ORCA -- BLM State Offices (approximately seven)
	Case Recordation System -- Denver Service Center
Hardware:	ORCA -- Honeywell level to minicomputers
	Case Recordation System -- Honeywell DPS 8/70 Mainframe
Software:	ORCA -- ASPEN/2
	Case Recordation System -- COBOL
Telecommunications:	ORCA and Case Recordation System -- BLM Network

<<< BLM Functional Requirement >>>

Administer Waste Management Program

Part 1: General Information

Associated Program: Energy and Mineral Cross Cutting Activities

User Organizations: BLM State Offices and District Offices

Owner/Operator/Maintainer: Office of Minerals Policy Analysis and Program Coordination (WO-501)

Existing Automated System: None

Part 2: Description of Overall Program, Requirement, and Current Procedures

Two national hazardous waste management laws -- the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Emergency Response, Cleanup, and Liability Act (CERCLA, more commonly known as Superfund) -- define procedures, standards, and criteria for the generation, transportation, and disposal of hazardous wastes. RCRA covers existing hazardous waste operations; Superfund deals with the clean up of abandoned waste dump sites.

BLM's energy and minerals program is directly affected by both of these laws. First, existing energy and minerals exploration and production operations generate substantial volumes of hazardous waste. BLM needs to ensure that this waste is properly disposed under RCRA. Second, old wells and mines may have been left is a state that endangers human health and the environment; these sites need to be identified under the Superfund legislation. In all, BLM estimates that there may be over 1 million potentially hazardous sites on Federal land that it administers, largely from the solid minerals program.

BLM's Superfund waste management program is still in its early stages. The first step, now underway, is to inventory relevant sites. Next, the sites will be investigated and ranked in priority order. Some sites may be significant enough to propose for the National Priority List (NPL). BLM will also play a role in coordinating clean up efforts at hazardous sites. Throughout all of these steps, BLM will work closely with EPA, affected state and local governments, public interest and environmental groups, and the responsible parties (i.e., lessees and operators).

Under the RCRA legislation, BLM must encourage greater sensitivity to hazardous waste disposal on the part of existing lessees and operators. Environmental issues must be stressed as part of inspection and enforcement procedures in order to detect and correct any problems. BLM must also develop a strategy to prevent Federal lands from being subjected to "midnight dumping" by waste law violators.

To support these functions, BLM needs an information system that will:

- List and describe critical information about potentially hazardous sites.
- Help rank these sites in priority order to identify the most important environmental threats.
- Track subsequent follow-up action on these sites.
- Satisfy EPA reporting requirements and allow BLM to respond to public inquiries.
- Generate summary reports and support on-line inquiries to provide for effective program management and administration.

Part 3: Sizing and Performance Requirements

Performance requirements:

- **Operating schedule/deadlines:** The operating schedules and deadlines in the waste management program have yet to be defined. Overall, operational processes (e.g., site investigation) will typically require a period of some months to complete.
- **Security/privacy:** Normal business standards for security and privacy are satisfactory.
- **Response time:** Response time should be sufficient to support high personnel productivity and effective program management. In light of the politically sensitive nature of the program, responses to on-line inquiries should be available within no more than 24 hours in order to meet the needs of higher management and outside organizations.
- **Interfaces:**
  - -- The system should interface with BLM's land records system to allow all programs access to information about the location and nature of potentially hazardous sites.
  - -- Summary information about waste management program violators should be incorporated into BLM's master name and/or bonding systems in order to allow repeat violators to be identified.

-- Waste management program considerations must be factored into BLM's inspection and enforcement programs.

o **Reliability:** Normal business standards for reliability are satisfactory.

Major programmatic inputs:

o **Number of sites with hazardous wastes:**

-- There are over 1 million sites on BLM land that could be generating hazardous wastes. There may be as many abandoned sites were hazardous waste was left on-site without being disposed of properly.

Major programatic outputs:

o Major programmatic outputs may include the number of hazardous sites identified, the number of environmental inspections performed, the number of violations detected, and the number of sites cleaned up.

Use of existing system: not applicable

Growth factors:

o BLM managers expect rapid growth in the waste management program over the next several years. At present, resource constraints are a key factor in restraining the size of the program. In addition, hazardous waste at Federal sites has become an increasingly important issue in recent amendments to RCRA and Superfund.

Part 4: Existing System

Name: None

Location: N/A

Hardware: N/A

Software: N/A

Telecommunications: N/A

Contact: N/A

<<< BLM Functional Requirement >>>

Coordinate with Minerals Management Service

Part 1: General Information

Associated Program:	Energy and Mineral Cross Cutting Activities
User Organizations:	BLM State Offices, District Offices, and Resource Area Offices with inspection responsibilities
Owner/Operator/Maintainer:	Division of Fluid Mineral Operations (WO-630) Division of Solid Mineral Operations (WO-660)
Existing Automated System:	MS-1, SLMS, PAAS, and AFS

Part 2: Description of Overall Program, Requirement, and Current Procedures

The Bureau of Land Management is responsible for on-shore mineral leasing, monitoring, and inspection. Royalties derived from production of minerals from BLM leases are collected by the Minerals Management Service (MMS), also within the Department of the Interior.

BLM coordinates its production inspections of oil and gas leases, production verification inspections of coal leases, and other relevant inspection and monitoring activities with MMS. This coordination occurs in two ways:

- **Routine matching of production data from BLM inspections with MMS reports on royalties paid.** MMS keeps records of the royalty payments received from each lessor or operator; each royalty payment is based on the amount of material produced and the royalty rate for the particular lease and substance. At the same time, BLM inspectors verify on-site production records and develop their own estimates of the amount of material produced (e.g., by calculating the total volume of coal removed from a surface mine). These amounts are compared to ensure that the royalties paid to MMS are consistent with BLM's inspection data.

- **Special investigations of BLM/MMS discrepancies.** If BLM's inspection results and MMS's royalty records do not agree, there is a need to identify the reason for any problem and to take appropriate

corrective action. There are a number of potential causes for any discrepancy: recordkeeping errors at BLM or MMS; inadvertent mistakes by the lessee or operator; erroneously interpreted inspection results at BLM; or deliberate underpayment by the lessee or operator. In these cases, BLM and MMS work together to resolve the situation and collect any additional royalties that might be owed to the Federal government.

To support its operations in this area, BLM needs an information system that will:

- Store information about production-related inspections.
- Automatically match the results of BLM's production-related inspections with MMS's records of royalties paid, identifying any discrepancies outside of a specified range and providing on-line access to relevant MMS and BLM data.
- Provide BLM personnel with the data and analytical capabilities to follow up on problem situations (e.g., coal volume estimation models, algorithms to assess the impact of calibration errors in oil and gas production monitoring guages).
- Generate management reports and support on-line inquiries on the number of discrepancies detected, the amount of money involved, the reasons for the problems, and the amount of time and resources required to take effective corrective action.

Part 3: Sizing and Performance Requirements

Performance requirements:

- **Operating schedule/deadlines:** BLM coordinates with MMS continuously as inspections and production verification evaluations are performed. When problems arise (e.g., coal production verification results do not match royalties paid to MMS), BLM and MMS work together to resolve the situation with the operator and/or lesee.
- **Security/privacy:** Normal business standards for security and privacy are satisfactory.
- **Response time:** There are no stringent response time requirements associated with MMS coordination. Ideally, BLM engineers and geologists should have access to all of MMS's systems on-line; as a practical matter, overnight turnaround is probably acceptable for most system transactions. Response time should also be evaluated in terms of its impact on user productivity, program effectiveness, and cash (royalty) collection.
- **Interfaces:**

-- MMS/BLM coordination depends on the information stored in BLM's inspection data systems (i.e., MS-1 and SLMS) and in MMS's systems (i.e., AFS and PAAS).

o **Reliability:** Normal business standards for reliability are satisfactory.

Major programmatic inputs:

o **Number of leases to be verified:**

-- BLM performs production verification inspections on thousands of leases each year.

Major programatic outputs:

o **The number of BLM/MMS discrepancies identified:**

-- Only a small percentage of production inspections generate the need for special BLM/MMS coordination.

Use of existing system:

o **Number of users:** The system would potentially be used by hundreds of BLM energy and mineral program operations personnel.

o **Amount of use:** The system would not be used heavily. While MMS/BLM coordination cases occur regularly, the total number is not extremely large. Only a small percentage of leases ever require special coordination work.

o **Distribution by office:** The amount of system use is roughly proportional to the level and number of royalty payments made for leases under the responsiblity of a specific BLM office.

Growth factors:

o Overall, BLM managers do not expect any growth in the level or number of royalty payments over the next several years. If energy prices decline, the number and level of payments may actually fall somewhat.

o The increasing emphasis on cash management and collection is likely to focus additional attention of the interactions between BLM and MMS.

Part 4: Existing System

Name:	MS-1
Location:	Denver Service Center
Hardware:	Honeywell DPS 8/70 Mainframe
Software:	ASPEN/2
Telecommunications:	BLM Network
Contact:	Joe Chesser, WO-504

Name:	Solid Leasable Minerals System (SLMS)
Location:	Denver Service Center
Hardware:	Honeywell DPS 8/70 Mainframe
Software:	ASPEN/2
Telecommunications:	BLM Network
Contact:	Allen Agnew, WO-660

Name:	AFS, PAAS, and other MMS systems
Location:	MMS facilities in Denver, Colorado
Hardware:	DEC VAX Minicomputers
Software:	--
Telecommunications:	--
Contact:	--

<<< BLM Functional Requirement >>>

Support BLM Resource Management Planning

Part 1: General Information

Associated Program: Energy and Mineral Cross Cutting Activities

User Organizations: BLM State Offices and District Offices

Owner/Operator/Maintainer: Division of Fluid Mineral Leasing (WO-620)
Division of Solid Mineral Leasing (WO-650)

Existing Automated System: None

Part 2: Description of Overall Program, Requirement, and Current Procedures

BLM's Resource Management Plans specify the available uses of Federal land. During the resource management planning process, BLM's Resource Area Offices evaluate the land within their jurisdiction to identify how it can be best used to achieve the maximum sustained yield under a multiple-use philosophy.

BLM energy and mineral program personnel are often called upon to contribute to the resource management planning process. BLM geologists, engineers, economists, and other specialists will assess the potential value of Federal land for mineral development, evaluate the potential impact of such development on alternative land uses, and otherwise provide general support and assistance in their areas of expertise.

To support this function, BLM needs a system that will:

- Store information describing the mineral development potential of land undergoing RMP development, together with data to help assess the impact of mineral development on alternative uses of the land.

- Provide analytical capabilities to allow BLM specialists to create and evaluate alternative land use scenarios and choose the one best suited to BLM's RMP objectives.

Part 3: Sizing and Performance Requirements

Performance requirements:

- **Operating schedule/deadlines:** RMPs are developed over a period of many months. There are no critically tight deadlines in the RMP development process. Most activities can be predicted weeks or months in advance.

- **Security/privacy:** Normal business standards for security and privacy are satisfactory.

- **Response time:** Response time should be adequate to meet BLM's operating schedule and deadlines. In addition, response time should be evaluated in light of its effect on on user productivity and effective program administration.

- **Interfaces:**

  -- RMPs act as the basis for all uses of BLM land. To support resource management planning, BLM's energy and minerals personnel need access to all available leases, operations, inspection, and enforcement data, as well as information about undeveloped mineral resources in the relevant area.

- **Reliability:** Normal business standards for reliability are satisfactory.

Major programmatic inputs:

- **Resource Management Plans initiated:**

  -- RMPs are performed once every several years for each of BLM's approximately 150 Resource Areas.

Major programatic outputs:

- **Resource Management Plans completed:**

  -- RMPs are completed once every several years for each of BLM's approximately 150 Resource Areas.

Use of existing system:

- **Number of users:** Resource Management Plans are developed at the Resource Area Office level. The planning process would be supported by energy and mineral program personnel at the State and District Office level. The number of energy and minerals personnel involved in any one RMP would probably be fewer than 10.

- **Amount of use:** Within an office, use of the system would be fairly intense during the time RMPs are being prepared, but very light at other times.

- **Distribution by office:** Use of the system is roughly proportional to the number of active energy and mineral leases. Use would be heaviest in areas with high levels of energy and mineral operations, such as Wyoming and New Mexico.

Growth factors:

- Overall, BLM managers do not expect any growth in the number of energy and mineral leases adjudicated over the next several years. If energy prices decline, the number of leases awarded may actually fall somewhat.

Part 4: Existing System

Name: None

Location: N/A

Hardware: N/A

Software: N/A

Telecommunications: N/A

Contact: N/A

<<< BLM Functional Requirement >>>

Provide Policy, Procedures, and Overall Program Management for Energy and Mineral Resources Functions

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Part 1: General Information

Associated Program: Energy and Mineral Cross Cutting Activities

User Organizations: Washington Office

Owner/Operator/Maintainer: Deputy Director, Energy and Mineral Resources (WO-500)

Existing Automated System: Various

Part 2: Description of Overall Program, Requirement, and Current Procedures

The Washington Office component of BLM's energy and mineral program provides overall policy guidance, defines procedures, provides expert assistance to the field in selected disciplines, and responds to questions from Congress, the Department of the Interior, environmental groups, oand other external organizations. The Washington Office does not participate directly in leasing, adjudication, monitoring, inspection, and enforcement activities.

To support these functions, BLM needs an information system that will:

- Store summary information about program objectives and accomplishements.
- Generate statistical reports depicting energy and mineral operations for use within and outside BLM.
- Support a powerful, user-friendly inquiry capability to allow Washington Office personnel to develop answers to questions generated by outside organizations and to gain insight into program trends and directions.

Part 3: Sizing and Performance Requirements

Performance requirements:

- Operating schedule/deadlines: Overall program management and oversight follows an annual cycle involving planning, budgeting, control, operations, and evaluation. Most activities can be predicted in advance, with the exception of inquiries from outside organizations.

- Security/privacy: Normal business standards for security and privacy are satisfactory.

- Response time: Response time for on-line inquiries should be no more than two to four hours, and preferrably as little as a few seconds.

- Interfaces:

  -- The summary Washington Office system draws information from all other BLM energy and mineral program functions, as well as from administrative systems such as payroll, personnel, financial management, and budgeting.

- Reliability: Normal business standards for reliability are satisfactory.

r programmatic inputs:

) Number of requests for information from outside organizations:

-- Overall, BLM's energy and mineral program receives an average of approximately 10-20 requests each day for information.

programatic outputs:

Number of requests answered:

-- BLM must provide some type of response to each inquiry received.

Policy and procedure documents:

-- The Washington Office energy and mineral divisions issue hundreds of policy documents, directives, procedures memoranda, and other instructions each year.

Use of iting system:

- Nuber of users: There are fewer than 200 Washington Office pesonnel in energy and minerals.

- Amount of use: Use of the system would be fairly heavy. While no

one individual would use the system on a full time basis, a substantial portion of WO staff would use the system at least once per week.

- **Distribution by office:** Use of the system is proportional to the overall level of energy and mineral activity in different program areas and especially to the direction and speed of changes in policy and operations.

Growth factors:

- Overall, BLM managers do not expect any growth in the energy and mineral programs over the next several years. It is possible, however, that there will be significant changes in policy and direction (e.g., a legislative requirement that BLM lease all oil and gas tracts on a competitive basis) that will generate the need for new guidance and procedures.

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t 4: Existing System

e: Different Washington Office divisions use different systems to meet their needs. In some cases, operation support systems generate management reports for WO (e.g., MS-1). In other cases, WO divisions or DSC operates manual or automated systems to collect and present the necessary data.

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re: N/A

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Tmunications: N/A

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Form 1279-3
(June 1984)

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